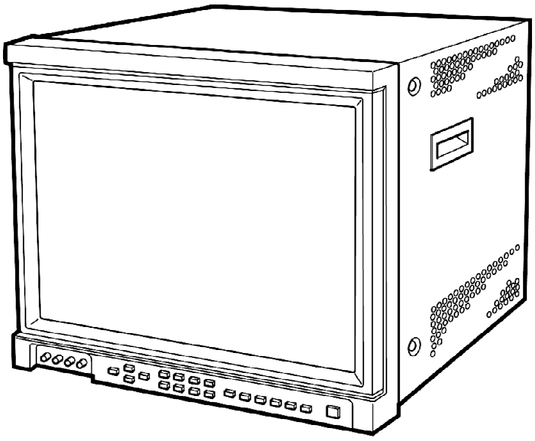
ORDER NO. BSD0111M025
D06

Service Manual

Multi-Format Monitor/ Video Input Card/ Component/RGB Input Card

BT-H1700P / BT-YA701P / BT-YA702P



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⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public.
It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product.
Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

Please refer to the Operating Instructions in the appendix folder. / (Go to Appendix List)

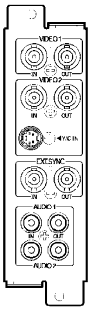
Panasonic

Specifications (BT-H1700P)

- **Type** : Multi-format monitor
- **Picture Tube** : 17" measured diagonally
- **Effective Screen Size** : Width : 330 mm
  Height : 250 mm
  Diagonal : 410 mm
- **Scanning Frequency** : H : 15 kHz/15 kHz – 45 kHz
  V : 50 Hz – 100 Hz
- **Video Band** : Component : 25 MHz (–3 dB)
  Video (Y/C) : 8 MHz (–3 dB)
- **Horizontal Resolution** : Video (Y/C) : 600 TV lines
  1080/60i : 800 TV lines
- **Input Terminals** : Installing an optional input card in SLOT 1, 2, or 3 is required.
  INPUT A/INPUT B: Terminals on the input card in SLOT 1
  INPUT C/INPUT D: Terminals on the input card in SLOT 2
  INPUT E/INPUT F: Terminals on the input card in SLOT 3
- **Compliant Video Signal** : NTSC (3.58 MHz)/PAL (4.43 MHz) (using the BT-YA701P)
  480i/576i/480p/1080i (60 Hz/24pSF)/720p (using the BT-YA702P)
  D1 serial digital (using the BT-YA703P)
  HD serial digital (using the BT-YA704P)
- **Remote Inputs** : • Point-of-contact connection, 1 line, D-sub connector (15-pin 3-line)
  • Serial connection, 1 line, D-sub connector (9-pin), compliant to RS-232C
- **Audio Output** : 1 W (monaural)
- **Built-in Speaker** : 8 cm round x 1
- **Environmental Conditions** : Operating temperature : 5°C – 35°C
  Operating humidity : 20% – 80% (non-condensing)
- **Power Requirements** : 120 V AC, 50 Hz/60 Hz
- **Power Consumption (120 V)** : 1.56 A (not including input card)
  Max. 1.85 A (including input card)
- **Dimensions** : Width : 395 mm
  Height : 334 mm
  Depth : 466.5 mm
  (not including wide mask and input card)
- **Weight** : 23.2 kg
  (not including wide mask and input card)
- **Accessory** : AC power cord

(BT-YA701P : OPTION)

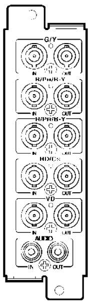
■ BT-YA701P: VIDEO INPUT CARD



Type : Video input card for multi-format monitor
Inputs/Outputs : VIDEO 1/VIDEO 2: 2 lines, BNC connector x 4 (1 V (p-p), 75 Ω)
Synchronised signal (EXT.SYNC): 1 line, BNC connector x 2 (1.0 V – 4.0 V (p-p), 75 Ω)
* The input (IN) and output (OUT) terminals are bridge-connected. Auto termination.
Y/C signal: 1 line, input only, mini-DIN 4-pin connector x 1 (Y/C input has a priority to a VIDEO 2 input) (Y: 1 V (p-p), 75 Ω/C: 0.286 V (NTSC (3.58 MHz))/0.3 V (PAL (4.43 MHz)), 75 Ω)
Audio signal: 2 lines (monaural), RCA pin x 4 (0.5 V (rms), high impedance)
* The input (IN) and output (OUT) terminals are bridge-connected.
Required slots : 1
Power consumption : 14 V DC, 0.25 A
7 V DC, 0.15 A
Weight : 0.5 kg
Dimensions (W x H x D) : 43 mm x 154.5 mm x 191.9 mm

(BT-YA702P : OPTION)

■ BT-YA702P: COMPONENT/RGB INPUT CARD



Type : Component/RGB input card for multi-format monitor
Inputs/Outputs : Component (Y, PB/B-Y, PR/R-Y) or RGB: 1 line, BNC connector x 6 (Y: 1 V (p-p), 75 Ω/PB, B-Y, PR, R-Y, R, G, B: 0.7 V (p-p), 75 Ω)
Synchronised signal (HD/CS, VD) : 1 line, BNC connector x 4 (1.0 V – 4.0 V (p-p), 75 Ω)
* The input (IN) and output (OUT) terminals are bridge-connected. Auto termination.
Audio signal: 1 line (monaural), RCA pin x 2 (0.5 V (rms), high impedance)
* The input (IN) and output (OUT) terminals are bridge-connected.
Required slots : 1
Power consumption : 14 V DC, 0.02 A
Weight : 0.5 kg
Dimensions (W x H x D) : 43 mm x 154.5 mm x 191.9 mm
Dimensions (W x H x D) : 43 mm x 154.5 mm x 191.9 mm

SAFETY PRECAUTIONS

GENERAL GUIDELINES

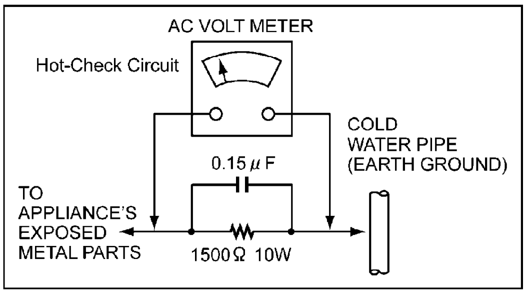
1. When servicing, observe the original lead dress. If a short / circuit is found, replace all parts which have been over-heated or damaged by the short circuit.

2. **After servicing, see to it that all the protective devices such as insulation barriers, insulation papers shields are properly installed.**
3. **After servicing, make the following leakage current checks to prevent the customer from being exposed to shock hazards.**

LEAKAGE CURRENT COLD CHECK

1. **Unplug the AC cord and connect a jumper between the two prongs on the plug.**
2. **Measure the resistance value, with an ohm meter, between the jumpered AC plug and each exposed metallic cabinet part on the equipment such as screwheads, connectors, control shafts, etc. The resistance value must be more than 5M Ω .**

Figure1



LEAKAGE CURRENT HOT CHECK (See Figure 1)

1. **Plug the AC cord directly into the AC outlet. / Do not use an isolation transformer for this check.**
2. **Connect a 1.5k Ω , 10W resistor, in parallel with a 0.15 μ F capacitor, between each exposed metallic part on the set an a good earth ground such as a water pipe, as shown in Figure1.**
3. **Use an AC voltmeter, with 1000 ohms/volt or more sensitivity, to measure the potential across the resistor.**
4. **Check each exposed metallic part, and measure the voltage at each point.**
5. **Reverses the AC plug in the AC outlet repeat each of the above measurements.**

6. The potential at any point should not exceed 0.15 volts RMS. A leakage current tester (Simpson Model 229 equivalent) may be used to make the hot checks, leakage current must not exceed 0.1 milliamp. In case a measurement is outside of the limits specified, there is a possibility of a shock hazard, and the equipment should be repaired and checked before it is returned to the customer.

ELECTROSTATICALLY SENSITIVE (ES) DEVICES

Some semiconductor (solid state) devices can be damaged easily by static electricity. Such components commonly are called Electrostatically sensitive (ED) Devices. Examples of typical ES devices are integrated circuits and some field-effect transistors and semiconductor “chip” components. The following techniques should be used to help reduce the incidence of component damage caused by static electricity.

1. Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any electrostatic charge on your body by touching a known earth ground. / Alternatively, obtain and wear a commercially available discharging wrist trap device, which should be removed for potential shock reasons prior to applying power to the unit under test.
2. After removing an electrical assembly equipped with ES devices, place the assembly on a conductive surface such as aluminum foil, to prevent electrostatic charge buildup or exposure of the assembly.
3. Use only a grounded tip soldering iron to solder or unsolder ES devices.
4. Use only an anti-static solder removal device classified as “anti-static” can generate electrical charges sufficient to damage ES devices.
5. Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ES devices.
6. Do not remove a replacement ES device from its protective package until immediately before you are ready to install it. / (most replacement ES devices are package with leads electrically shorted together by conductive foam, aluminum foil or

comparable conductive material).

7. Immediately before removing the protective material from the leads of a replacement ES device, touch the protective material to the chassis or circuit assembly into which the device will be installed. / CAUTION : Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.
8. Minimize bodily motions when handling unpacked replacement ES devices. (Otherwise harmless motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity sufficient to damage an ES device).

X-RADIATION

WARNING

1. The potential source of X-radiation in EVF sets is the High Voltage section and the picture tube.
2. When using a picture tube test jig for service, ensure that jig is capable of handling 10kV without causing x-radiation.

Note :
It is important to use an accurate periodically calibrated high voltage meter.

3. Measure the High Voltage. The meter (electric type) reading should indicate 2.5kV, 0.15kV. If the meter indication is out of tolerance, immediate service and correction is required to prevent the possibility of premature component failure. To prevent an x-radiation possibility, it is essential to use the specified picture tube.

In order to prevent any fatal accidents caused by misoperation or mishandling the monitor, be fully aware of all the following precautions.

WARNINGS

To prevent fire or shock hazard, do not expose this monitor to rain or moisture. Dangerous high voltages are present inside the unit. Do not remove the back cover of the cabinet. When servicing the monitor, contrast qualified service personnel. Never try to service it yourself.

WARNING : THIS APPARATUS
MUST BE EARTHED.

Improper operations, in particular alternation of high voltage or changing the type of tube may result in x-ray emission of considerable dose. A unit altered in such a way no longer meets the standards of certification, and must therefore no longer be operated.

This monitor is equipped with a 3-blade grounding-type plug to satisfy FCC rule. If you are unable to insert the plug into the outlet, contact your electrician.

FCC NOTICE (U.S.A. only)

CAUTION: Changes or modifications not approved by PANASONIC could void the user s authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

■ PRECAUTIONS

- Use only the power source specified on the unit. (120 V/ AC, 60 Hz)
- Keep flammable material, water, and metal objects away from the unit – especially the interior of the unit.
- This unit incorporates high voltage circuitry.
  For your own safety and that of your equipment, do not attempt to modify or disassemble this monitor.
  There are no user-serviceable parts inside.
- Video or audio signals cannot be input to this monitor without optional input cards.
- In these instructions, all explanations (except where noted) refer to the BT-H1700P with input cards installed.

■ HANDLING

- Avoid shocks or vibrations. These may damage the unit and cause it to malfunction.
- Do not block the ventilation slots.
- Do not expose this unit to high temperatures.
  Extended exposure to direct sunlight or a heater could deform the cabinet or cause the performance of internal components to deteriorate.
- Do not place the unit near appliances generating strong electric or magnetic fields. There can generate picture noise and instability.
- Keep the monitor clean by wiping the cabinet and CRT screen with a piece of soft cloth. Do not apply thinner or benzine. These chemicals can damage the finish and erase printed letters. When the unit is excessively dirty, use a diluted neutral cleanser, then wipe away the cleanser with a dry cloth.

SCREEN BURN

- It is not recommended to keep a certain still image displayed on screen for a long time as well as displaying extremely bright images on screen. This may cause a burning (sticking) phenomenon on the screen of cathode-ray tube. This problem does not occur as far as displaying normal video playback motion images.

DEGAUSS

- Do not use a magnet eraser to degauss the monitor s cathode ray tube from the outside. Doing so may distort its aperture grill and cause a malfunction.

1. Specific Service Instructions

2. Servicing Guide

3. Service Adjustments

4. Adjustment Of NTSC/PAL Video Input Card (BT-YA701P)

5. Block Diagram

6. Schematic Diagrams

NOTE
BE SURE TO MAKE YOUR ORDERS OF REPLACEMENT PARTS ACCORDING TO PARTS LIST.

CAUTION
THE ▭ MARK INDICATES THE PRIMARY CIRCUIT TO DISTINGUISH THE PRIMARY FROM THE SECONDARY CIRCUIT. / PAY ATTENTION NOT TO RECEIVE AN ELECTRIC SHOCK DURING REPA
SERVICE OF THE PRODUCTS.

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED WITH THE MARK ⚠ HAVE THE SPECIAL CHARACTERISTICS FOR SAFETY. / WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SAME TYPE.

6.1. SIGNAL AND TALLY PWB CIRCUIT DIAGRAMS

6.2. MAIN PWB CIRCUIT DIAGRAM

6.3. S. CORRECTION PWB CIRCUIT DIAGRAM

6.4. CRT SOCKET PWB CIRCUIT DIAGRAM

6.5. FRONT CONTROL AND FRONT VR PWB CIRCUIT DIAGRAMS

6.6. MOTHER PWB CIRCUIT DIAGRAM

6.7. REMOTE PWB CIRCUIT DIAGRAM

6.8. SUB DEF PWB CIRCUIT DIAGRAM

6.9. HV CONTROL PWB CIRCUIT DIAGRAM

6.10. VIDEO PWB CIRCUIT DIAGRAM (BT-YA701P) [OPTION]

6.11. COMPO PWB CIRCUIT DIAGRAM (BT-YA702P) [OPTION]

7. Circuit Board Diagrams

NOTE
BE SURE TO MAKE YOUR ORDERS OF REPLACEMENT PARTS ACCORDING TO PARTS LIST.

CAUTION
THE ▭ MARK INDICATES THE PRIMARY CIRCUIT TO DISTINGUISH THE PRIMARY FROM THE SECONDARY CIRCUIT. / PAY ATTENTION NOT TO RECEIVE AN ELECTRIC SHOCK DURING REP
SERVICE OF THE PRODUCTS.

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED WITH THE MARK ⚠ HAVE THE SPECIAL CHARACTERISTICS FOR SAFETY. / WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SAME TYPE.

7.1. MAIN P.C.BOARD

7.2. SIGNAL, FRONT CONTROL, TALLY & REMOTE P.C.BOARD

7.3. CRT, FRONT VR & MOTHER P.C.BOARD

7.4. S. CORRECTION, VIDEO (BT-YA701P) & COMPO (BT-YA702P) (OPTION)P.C.BOARD

8. Mechanical Replacement Parts List & Exploded Views

NOTE:

1. **Be sure to make your orders of replacement parts according to this list.**
2. **Unless otherwise specified, all resistors are in OHMS, K=1,000 OHMS, all capacitors are in MICROFARADS (μ F), P= μ μ F.**
3. **The P.C. Board untils marked with " ■ " shown below the main assembled parts.**
4. **The parts marked with Ⓔ on the exploded view show the electric parts.**
5. **IMPORTANT SAFETY NOTICE**
   Components identified with the mark ⚠ have the special characteristics for safety. When re any of these components, use only the same type.
6. **The marking (RTL) indicates the retention time is limited for this item. / After the diacontinuati assembly in production, it will no longer be available.**
7. **“(M)” in Remark column indicates needed in the periodical maintenance.**

9. Electrical Replacement Parts List

NOTE:

1. **Be sure to make your orders of replacement parts according to this list.**
2. **Unless otherwise specified, all resistors are in OHMS, K=1,000 OHMS, all capacitors are in MICROFARADS (μ F), P= μ μ F.**
3. **The P.C. Board untils marked with " ■ " shown below the main assembled parts.**
4. **The parts marked with Ⓔ on the exploded view show the electric parts.**
5. **IMPORTANT SAFETY NOTICE**
   Components identified with the mark ⚠ have the special characteristics for safety. When re any of these components, use only the same type.
6. **The marking (RTL) indicates the retention time is limited for this item. / After the diacontinuati assembly in production, it will no longer be available.**

NOTE:

A list of parts is stored in data form in the CD-ROM. It is located within the folder APPENDIX/PARTS. Please use as necessary.

10. PDF for Printing

● Setting of Acrobat Reader

To view a link in a new window, follow the procedure below. When you operate the PDF documen printing, you can open a PDF file of each section while displaying the cover page. This is convenie the PDF files in several sections.

<How to set> In the [File] menu, select [Preference] - [General...] and disable [Open Cross-Doc Lin Same Window].

SERVICING GUIDE

SELF DIAGNOSIS

The unit incorporates a self-diagnosis function and is capable of indicating the absence of raster by blinking on the front panel LEDs and the on-screen display.

1. DISPLAYING THE SELF DIAGNOSIS INDICATIONS

- LED indication: When raster is absent, the six LEDs of INPUT SELECT A to F on the front panel blink to indicate this condition.
- On-screen display: The self diagnosis results can be displayed when the unit is on.

2. LED INDICATION

- **Operation during an LED indication:**
  The main microcomputer detects any abnormalities in communication on the I2C and causes the LEDs to blink.
  At the same time, the unit is turned off to protect it but the LEDs keep on blinking.
  At this time, the main microcomputer does not accept commands except for the POWER switch on the front panel.

- **How to cancel the LED blinking:**
  Press the POWER switch on the front panel to turn the unit ON again.

- **Types of LED indications**

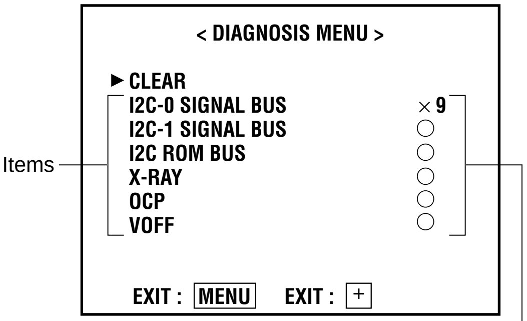
LED INDICATION TYPE	ON-SCREEN DISPLAY	DIAGNOSIS RESULT	MALFUNCTIONING CIRCUIT
INPUT A blinking at 0.5-second intervals	I2C-0 DEFLECTION BUS	Communication error in the signal buses (SCL0, SDA0) of I2C	• SIGNAL PWB ASS'Y IC801 • MAIN PWB ASS'Y IC510 • MOTHER PWB ASS'Y IC103 • REMOTE PWB ASS'Y IC102, IC103 • SUB DEF PWB ASS'Y IC001
INPUT B blinking at 0.5-second intervals	I2C-1 SIGNAL BUS	Communication error in the signal buses (SCL1, SDA1) of I2C	• SIGNAL PWB ASS'Y IC102, IC103, IC601, IC801 • FRONT CONTROL PWB ASS'Y IC101
INPUT C blinking at 0.5-second intervals	I2C ROM BUS	Communication error in the ROM buses (SCL2, SDA2) of I2C	• SIGNAL PWB ASS'Y IC801, IC805
INPUT D blinking at 0.5-second intervals	X-RAY	X-rays detected	• SIGNAL PWB ASS'Y IC801 • HV CONTROL PWB ASS'Y IC503
INPUT E blinking at 0.5-second intervals	OCP	Overcurrent detected	• SIGNAL PWB ASS'Y IC801 • MAIN PWB ASS'Y
INPUT F blinking at 0.5-second intervals	VOFF	Neck-break prevention detected	• SIGNAL PWB ASS'Y IC801 • SUB DEF PWB ASS'Y IC005

3. ON-SCREEN DISPLAY (SELF DIAGNOSIS DISPLAY MODE)

- **How to enter the self diagnosis display mode:**
  Press a key on the front panel to display the service menu and select "**DIAGNOSIS**".
  (See "Basic Operations of Service Menu" on page 18.)

- **How to clear the trouble history in the self diagnosis mode:**
  In the DIAGNOSIS MENU as shown on the left, select "**CLEAR**".
  A new screen appears. Press the **VOL +** (▶) on the front panel to select "**YES**".
  This clears the trouble history in the self diagnosis mode and the symbols displayed to the right of all of the items become " ○ ".

- **Trouble history**
  The trouble history of each item is counted up to 9. The figure is held in the memory until the trouble history is cleared.
  As a result, the displayed trouble history count remains 9 even if it actually exceeds 9.

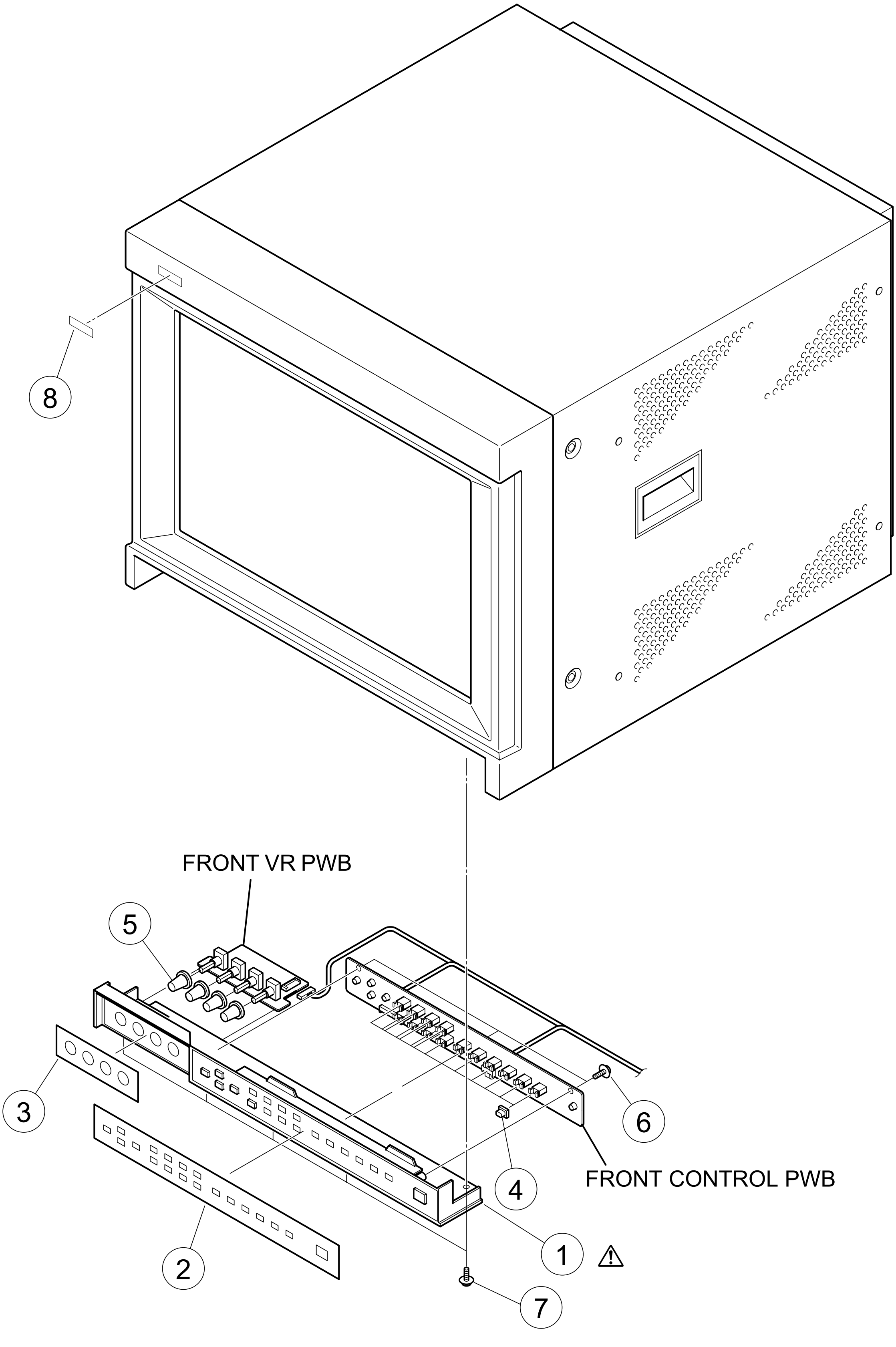

< DIAGNOSIS MENU >
▶ CLEAR
I2C-0 SIGNAL BUS ×9
I2C-1 SIGNAL BUS ○
I2C ROM BUS ○
X-RAY ○
OCP ○
VOFF ○
EXIT : MENU
EXIT : +
Items

SELF DIAGNOSIS DISPLAY MODE
(SERVICE MENU ITEM DIAGNOSIS)

○ : Normal
× : Abnormal

CASING PARTS ASSEMBLY

Components identified with the mark ⚠ have the special characteristics for safety.
When replacing any of these components, use only the same type.


8
FRONT VR PWB
5
3
6
4
FRONT CONTROL PWB
1 ⚠
2
7

CASING PARTS ASSEMBLY

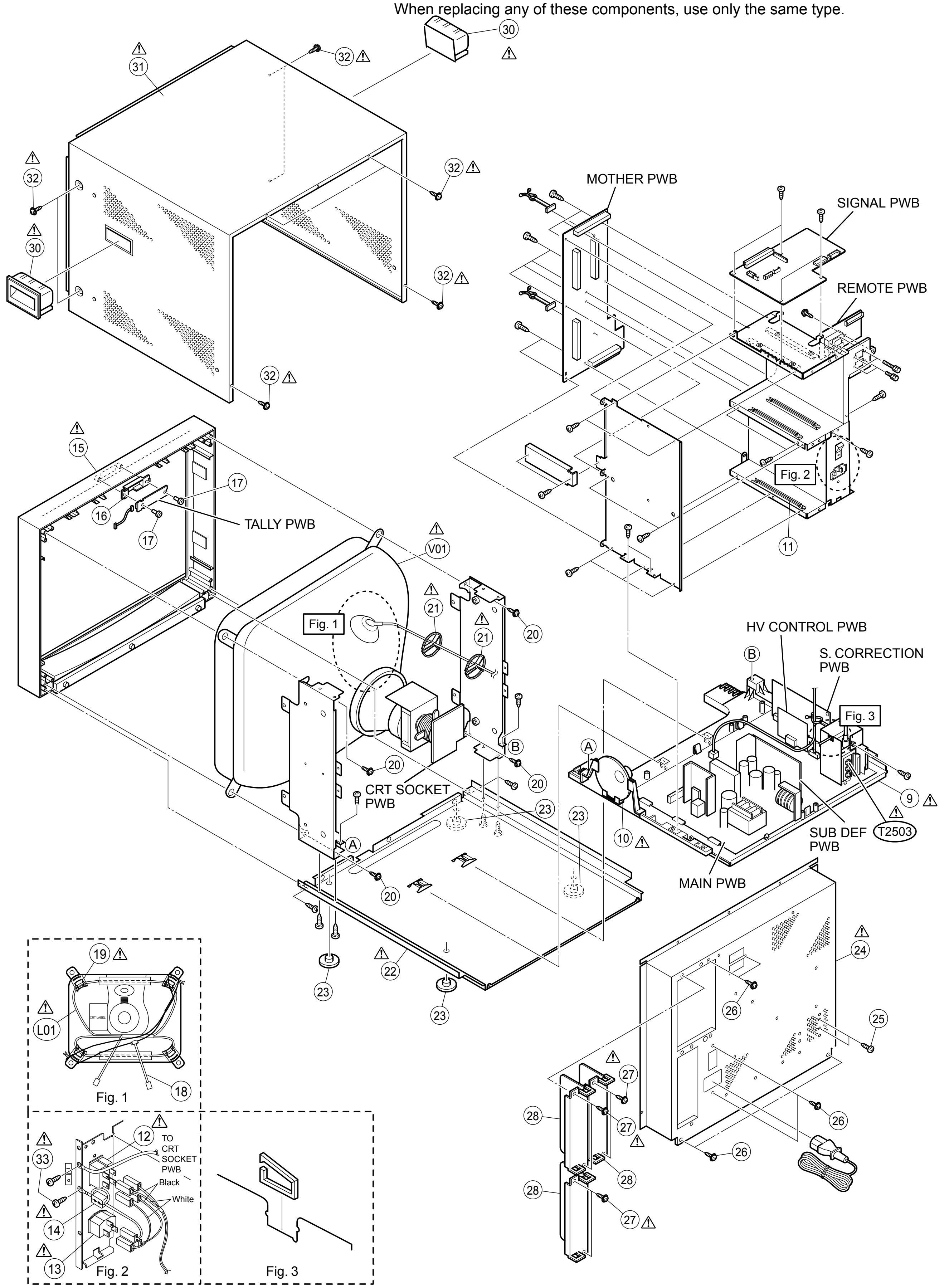
Components identified with the mark ⚠ have the special characterisitics for safety.
When replacing any of these components, use onlly the same type.

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
⚠ 1	LC20620-002A	CONTROL BASE	1	
2	LC31229-003A	CONTROL SHEET	1	
3	LC31230-002A	VOLUME SHEET	1	
4	LC40814-001A	PUSH BUTTON	13	
5	CM46758-005	CONTROL KNOB	4	
6	QYSBSFG3010Z	SCREW	3	
7	QYSBSF4012Z	SCREW	5	
8	CM48151-010	PANASONIC BADGE	1	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks

CHASSIS FRAME ASSEMBLY

Components identified with the mark ⚠ have the special characteristics for safety.
When replacing any of these components, use only the same type.


30
32 ⚠
⚠
⚠ 31
⚠ 32
⚠ 30
32 ⚠
32 ⚠
32 ⚠
MOTHER PWB
SIGNAL PWB
REMOTE PWB
Fig. 2
11
⚠ 15
16
17
17
TALLY PWB
⚠ V01
⚠ 21
⚠ 21
20
Fig. 1
HV CONTROL PWB
B
S. CORRECTION PWB
Fig. 3
A
B
20
20
CRT SOCKET PWB
20
23
23
A
10 ⚠
9 ⚠
⚠ T2503
SUB DEF PWB
MAIN PWB
⚠ 24
26
25
19 ⚠
⚠ L01
CRT LABEL
18
Fig. 1
⚠ 22
23
23
23
⚠ 27
28
27 ⚠
26
26
28
28
27 ⚠
⚠ 12
TO CRT SOCKET PWB
Black
White
⚠ 33
⚠ 14
⚠ 13
Fig. 2
Fig. 3

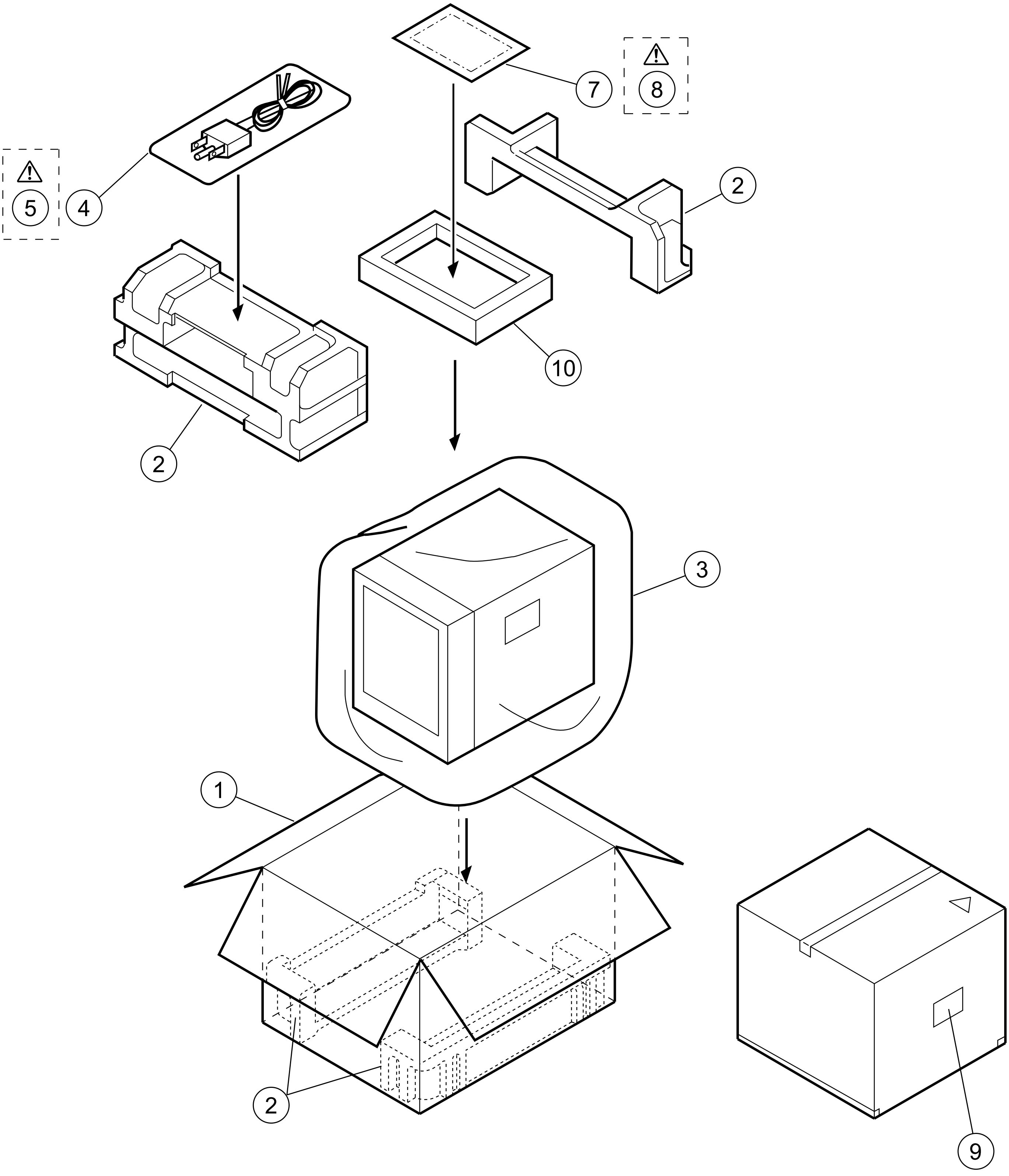
CHASSIS FRAME ASSEMBLY

Components identified with the mark ⚠ have the special characterisitics for safety.
When replacing any of these components, use onlly the same type.

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
⚠ L01	QQW0112-001	DEGAUSS COIL	1	
⚠ V01	M41LRY31X22	CRT ASS'Y (WITH DY)	1	
⚠ T2503	QQH0087-001	FBT	1	
⚠ 9	LC10868-001B	SHASSIS BASE	1	
⚠ 10	CEBSS08P-01K	SPEAKER	1	
11	QZW0046-001	GUIDE RAIL	1	
⚠ 12	QSW0699-001	POWER SWITCH	1	
⚠ 13	QMCB004-001	3P INLET	1	
⚠ 14	QQR0490-001	NOISE FILTER	1	
⚠ 15	LC10867-002A	FRONT PANEL	1	
16	LC40815-001A	TALLY COVER	1	
17	QYSBSFG3010Z	SCREW	2	
18	CHGT0011-AAN	WIRE	1	
⚠ 19	CHM2032-045F	DEG CLAMP	1	
20	CM48275-001	SCREW	4	
⚠ 21	CM30964-001	SPACER RING	2	
⚠ 22	LC11052-001A	BOTTOM COVER	1	
23	CM47686-00A	FOOT	4	
⚠ 24	LC11053-001A	REAR COVER	1	
25	QYSBSF4012Z	SCREW	2	
⚠ 26	CM44287-00C	SCREW	6	
⚠ 27	CM44287-00E	SCREW	6	
28	LC31464-003A	SLOT PANEL	3	
⚠ 30	LC20914001BH	HANDLE	2	
⚠ 31	LC10270-014A	UPPER COVER	1	
⚠ 32	CM44287-00C	SCREW	8	
⚠ 33	CM44287-00E	SCREW	2	

PACKING PARTS ASSEMBLY

Components identified with the mark ⚠ have the special characteristics for safety.
When replacing any of these components, use only the same type.



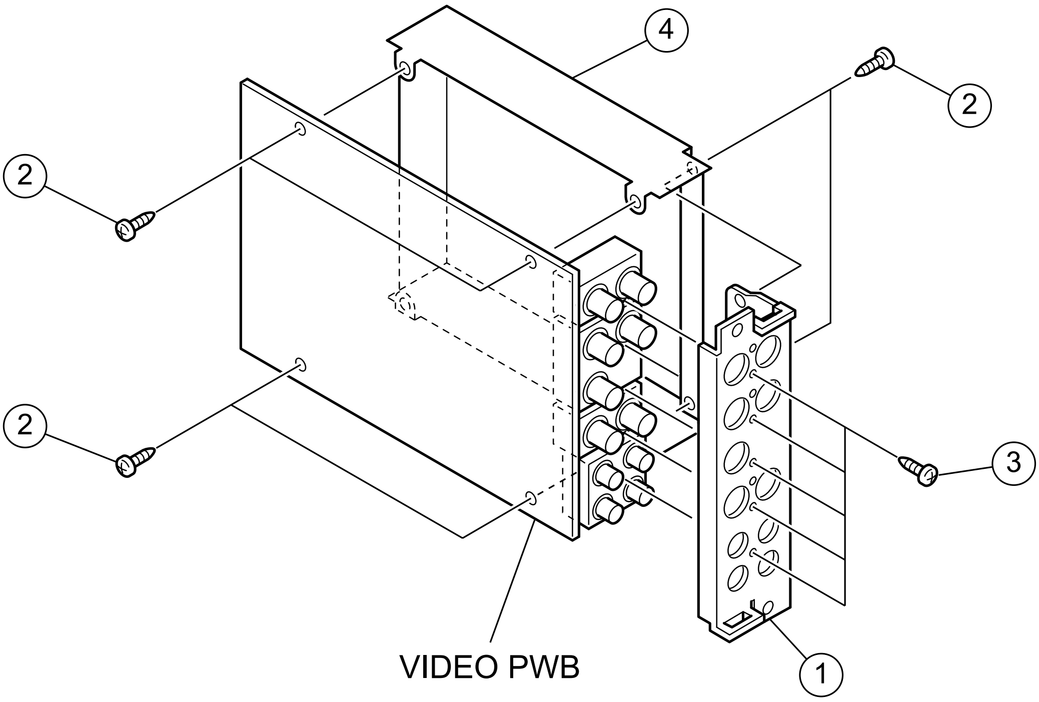
PACKING PARTS ASSEMBLY

Components identified with the mark ⚠ have the special characterisitics for safety.
When replacing any of these components, use onlly the same type.

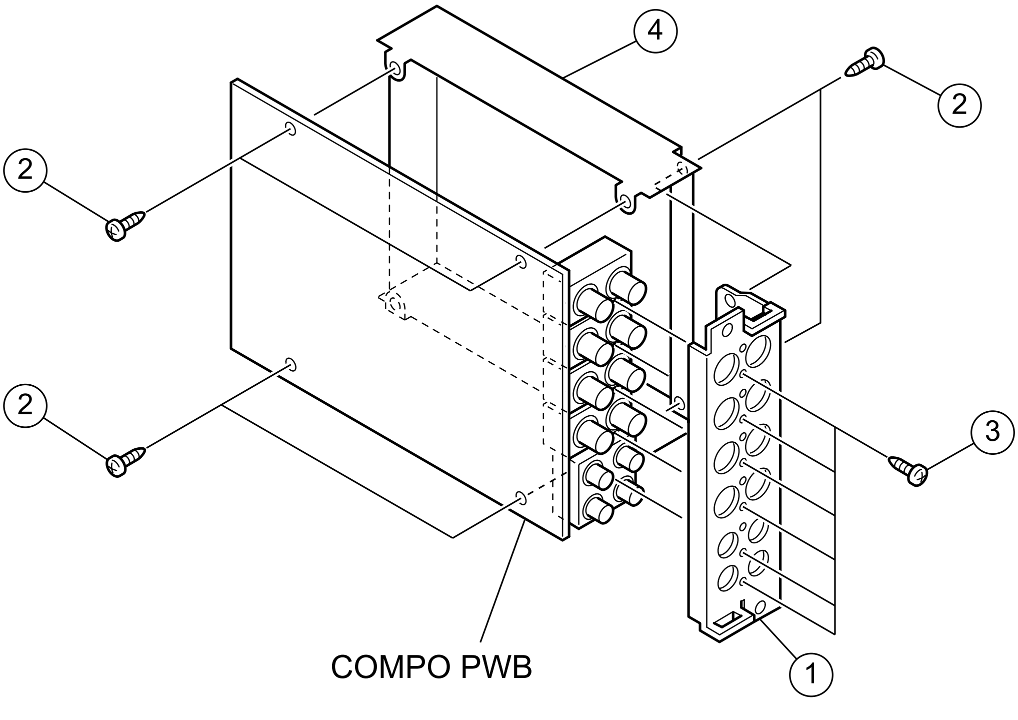
Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
1	LC10275-055A	PACKING CASE	1	
2	LC10873-001B	PACKING CUSHION	1	
3	CP30974-004	POLYETHYLENE BAG	1	
4	QPA01203005	POLYETHYLENE BAG	1	
⚠ 5	QMP1110-244K	POWER CORD	1	
7	QPA02503505P	POLYETHYLENE BAG	1	
⚠ 8	LCT1110-001A	OPERATING INSTRUCTIONS	1	
9	LC21013-003B	PACKING LABEL	1	
10	LC20758-002A	WIDE MASK ASS'Y	1	

CHASSIS FRAME ASSEMBLY (OPTION)

[BT-YA701P]


4
2
2
2
3
VIDEO PWB
1

[BT-YA702P]

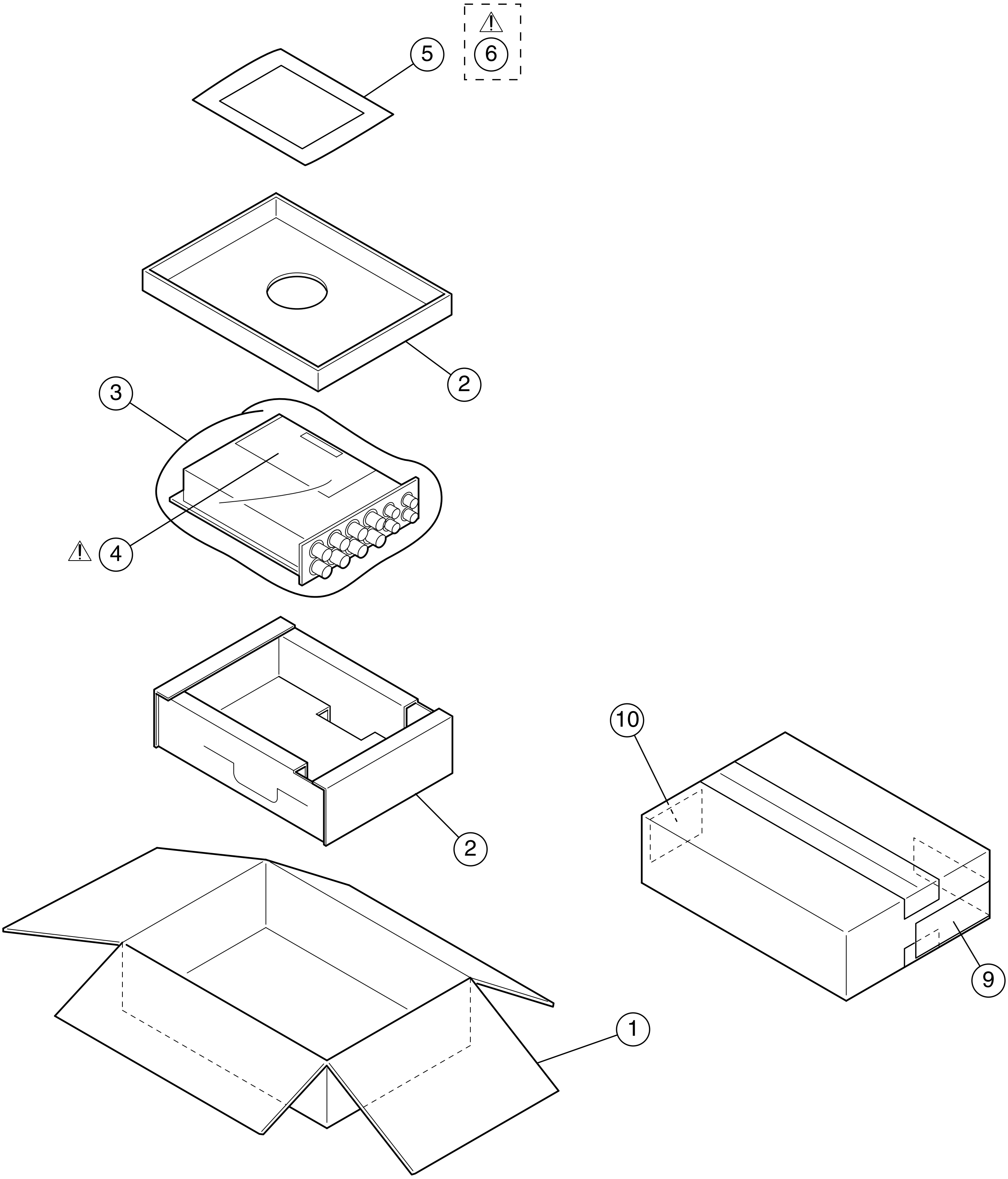

4
2
2
2
3
COMPO PWB
1

CHASSIS FRAME ASSEMBLY(OPTION)

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
	BT-YA701P			
1	LC31328-001A	SLOT PANEL	1	
2	QYSBSGG3008Z	TAPPING SCREW	6	
3	QYSDSF3010M	TAPPING SCREW	5	
4	LC31465001AC	SLOT SHIELD	1	
	BT-YA702P			
1	LC31328-002A	SLOT PANEL	1	
2	QYSBSGG3008Z	TAPPING SCREW	6	
3	QYSDSF3010M	TAPPING SCREW	6	
4	LC31465001AC	SLOT SHIELD	1	

PACKING PARTS ASSEMBLY (BT-YA701P, BT-YA702P)

Components identified with the mark ⚠ have the special characteristics for safety.
When replacing any of these components, use only the same type.



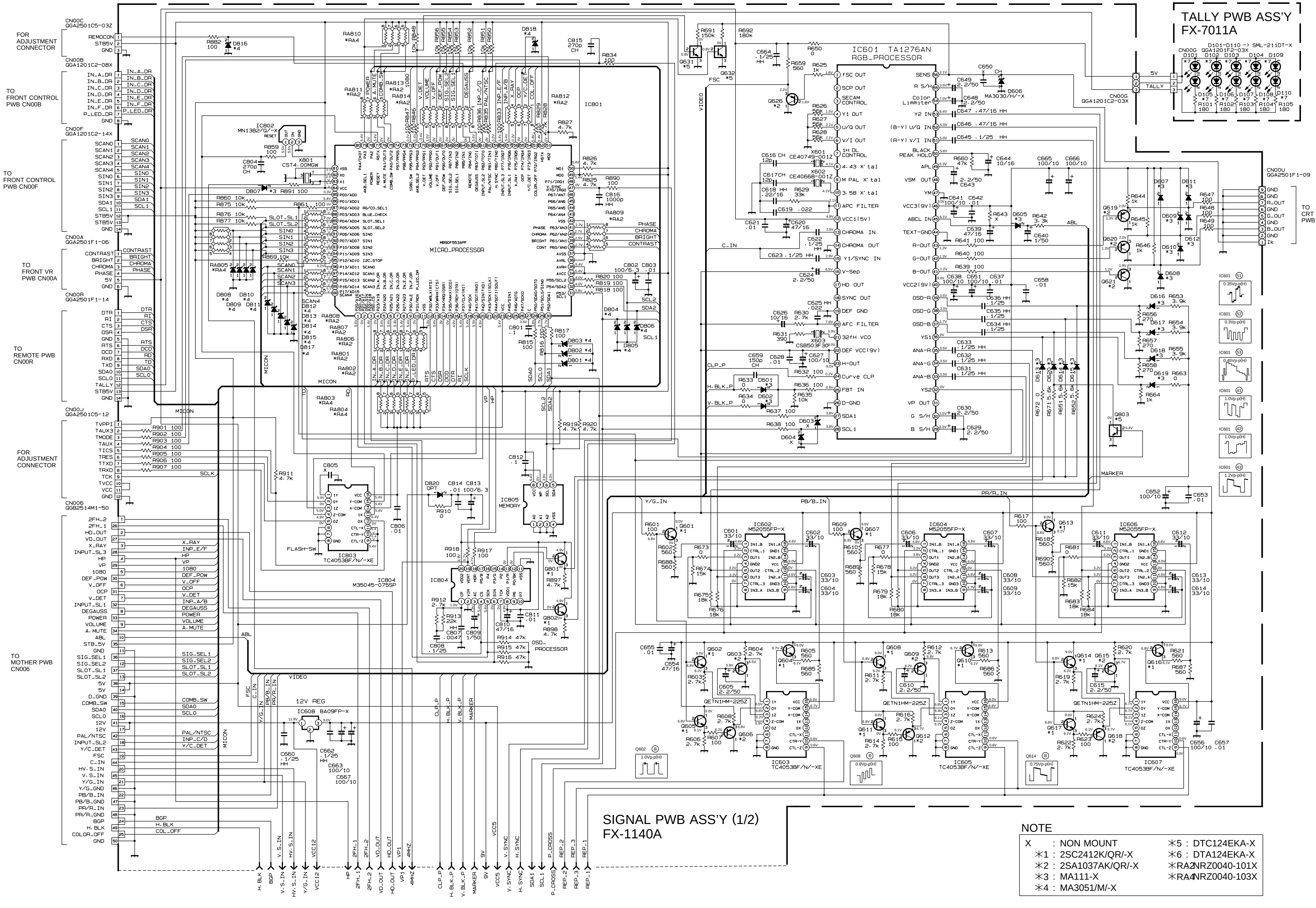
PACKING PARTS ASSEMBLY(BT-YA701P, BT-YA702P)

Components identified with the mark ⚠ have the special characterisitics for safety.
When replacing any of these components, use onlly the same type.

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
1	LC31249-001A	PACKING CASE	1	
2	LC31248-001A	PACKING SHEET	1	
3	QPK02503505P	POLYETHYLENE BAG	1	
⚠ 4	LC21017-001A	NAME PLATE	1	FOR BT-YA701P
⚠ 4	LC21017-002A	NAME PLATE	1	FOR BT-YA702P
5	QPA02503505P	POLYETHYLENE BAG	1	
⚠ 6	LCT1111-001A	OPERATING INSTRUCTIONS	1	
9	LC31822-001A	PACKING LABEL	1	FOR BT-YA701P
9	LC31822-002B	PAKCING LABEL	1	FOR BT-YA702P
10	CM36338-001	POS LABEL	1	

■ SCHEMATIC DIAGRAMS

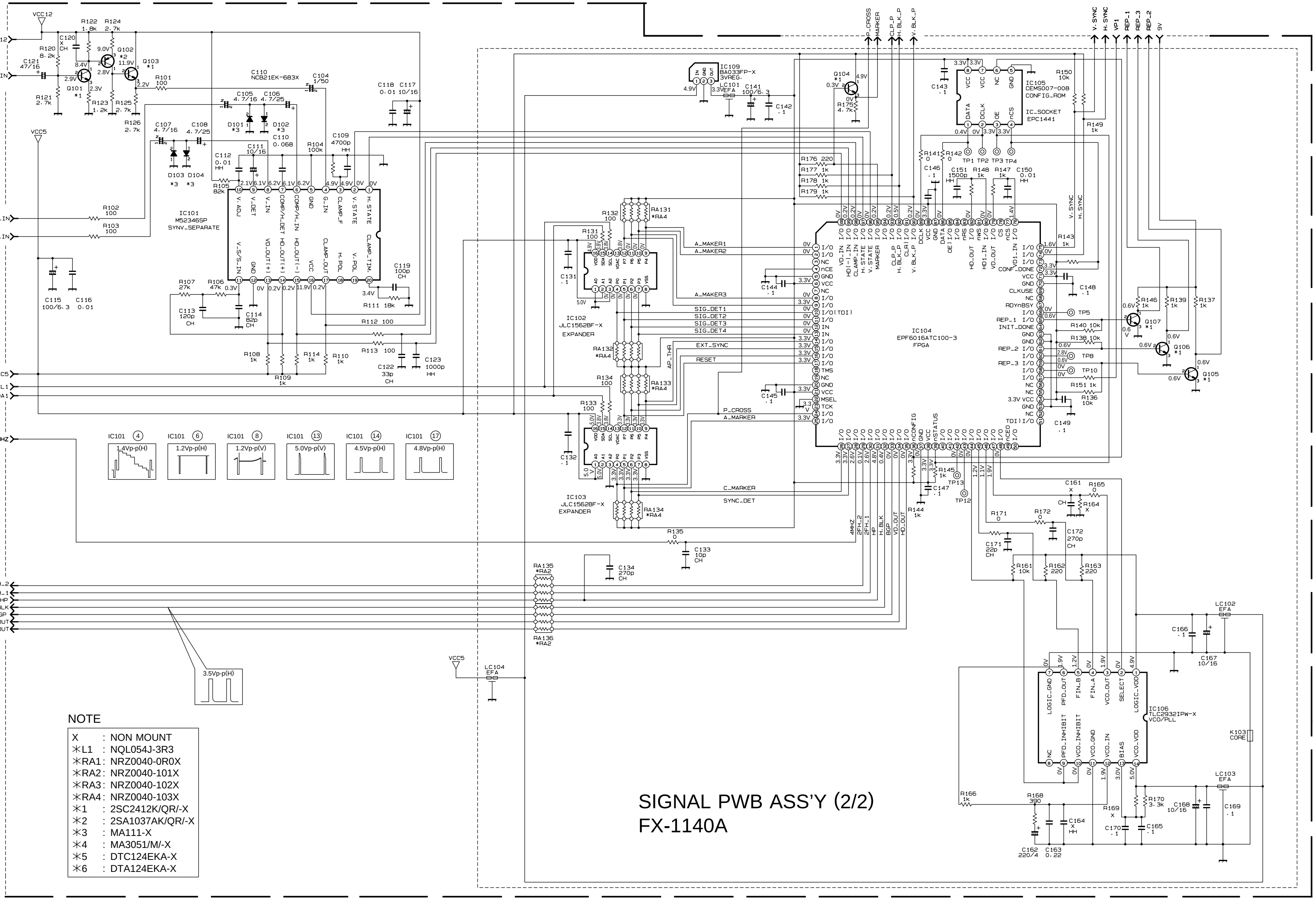
SIGNAL (1/2) AND TALLY PWB CIRCUIT DIAGRAMS


TALLY PWB ASS'Y
FX-7011A
SIGNAL PWB ASS'Y (1/2)
FX-1140A
IC601 TA1276AN
RGB_PROCESSOR
IC801
MICRO_PROCESSOR
IC802 MN1382/Q/-X
IC803 TC4053BF/N/-XE
IC804 M35045-075SP
OSD_PROCESSOR
IC805 MEMORY
IC602 M52055FP-X
IC604 M52055FP-X
IC606 M52055FP-X
IC603 TC4053BF/N/-XE
IC605 TC4053BF/N/-XE
IC607 TC4053BF/N/-XE
IC608 BA09FP-X
12V REG
FOR ADJUSTMENT CONNECTOR
TO FRONT CONTROL PWB CN00B
TO FRONT CONTROL PWB CN00F
TO FRONT VR PWB CN00A
TO REMOTE PWB CN00R
TO MOTHER PWB CN006
TO CRT SOCKET PWB CN00U

NOTE

X	: NON MOUNT	✳5	: DTC124EKA-X
✳1	: 2SC2412K/QR/-X	✳6	: DTA124EKA-X
✳2	: 2SA1037AK/QR/-X	✳RA2	NRZ0040-101X
✳3	: MA111-X	✳RA4	NRZ0040-103X
✳4	: MA3051/M/-X		

SIGNAL PWB CIRCUIT DIAGRAM (2/2)


VCC12
Y/G_IN
HV.S_IN
V.S_IN
VCC5
SCL1
SDA1
4MHZ
2FH_2
2FH_1
HP
H.BLK
BGP
VD_OUT
HD_OUT
IC101
M52346SP
SYNV_SEPARATE
C110
NCB21EK-683X
IC102
JLC1562BF-X
EXPANDER
IC103
JLC1562BF-X
EXPANDER
IC104
EPF6016ATC100-3
FPGA
IC105
CEMS007-00B
CONFIG_ROM
IC_SOCKET
EPC1441
IC106
TLC2932IPW-X
VCO/PLL
IC109
BA033FP-X
3VREG.
Q101
Q102
Q103
Q104
Q105
Q106
Q107
RA131
RA132
RA133
RA134
RA135
RA136
LC101
LC102
LC103
LC104
K103
CORE
P_CROSS
MARKER
CLP_P
H.BLK_P
V.BLK_P
V.SYNC
H.SYNC
VP1
REP_1
REP_3
REP_2
9V
A_MAKER1
A_MAKER2
A_MAKER3
SIG_DET1
SIG_DET2
SIG_DET3
SIG_DET4
EXT_SYNC
RESET
P_CROSS
A_MARKER
C_MARKER
SYNC_DET
IC101 ④ 1.4Vp-p(H)
IC101 ⑥ 1.2Vp-p(H)
IC101 ⑧ 1.2Vp-p(V)
IC101 ⑬ 5.0Vp-p(V)
IC101 ⑭ 4.5Vp-p(H)
IC101 ⑰ 4.8Vp-p(H)
3.5Vp-p(H)

NOTE

X	:	NON MOUNT
⁎L1	:	NQL054J-3R3
⁎RA1	:	NRZ0040-0R0X
⁎RA2	:	NRZ0040-101X
⁎RA3	:	NRZ0040-102X
⁎RA4	:	NRZ0040-103X
⁎1	:	2SC2412K/QR/-X
⁎2	:	2SA1037AK/QR/-X
⁎3	:	MA111-X
⁎4	:	MA3051/M/-X
⁎5	:	DTC124EKA-X
⁎6	:	DTA124EKA-X

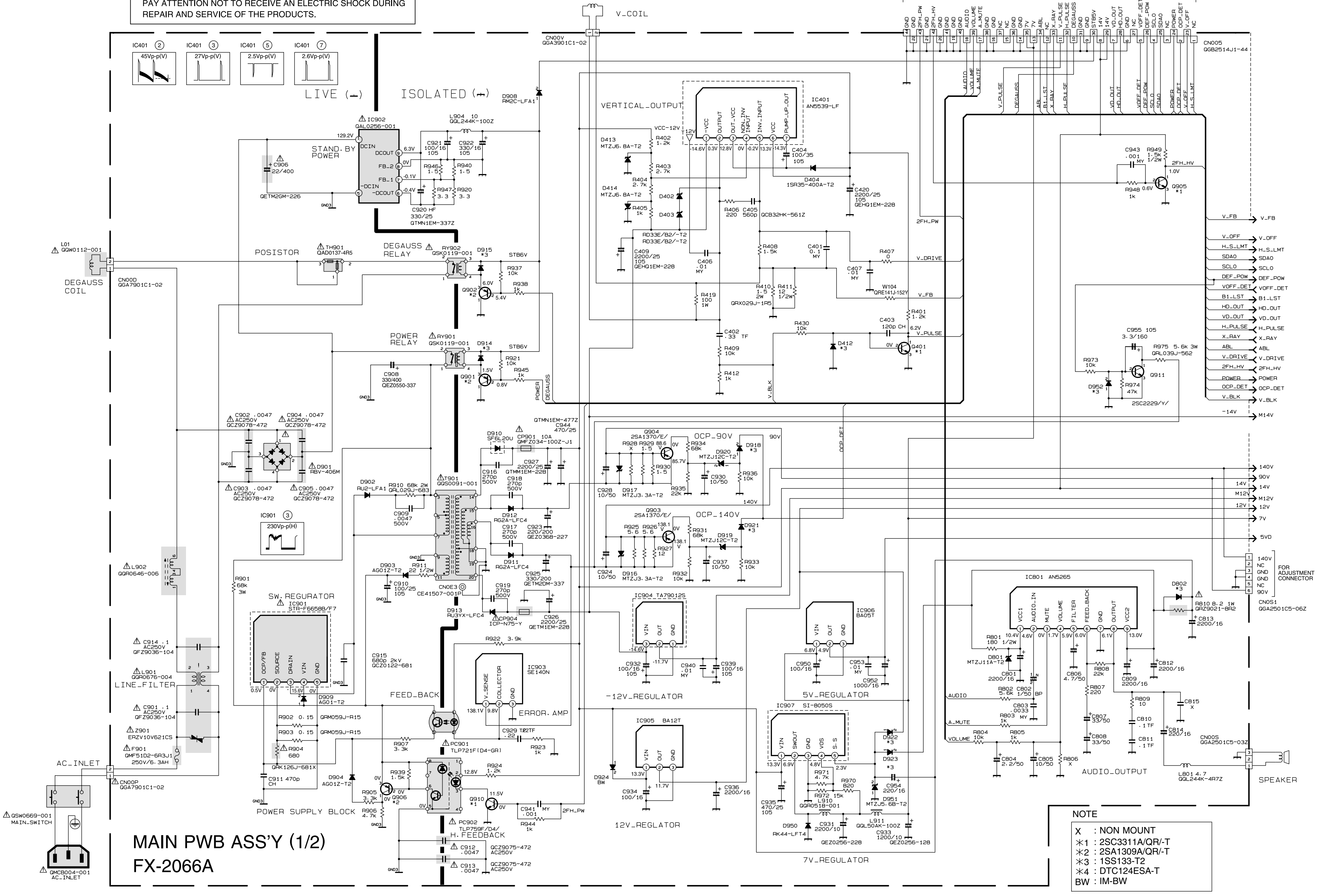
SIGNAL PWB ASS'Y (2/2)
FX-1140A

MAIN PWB CIRCUIT DIAGRAM (1/2)

CAUTION

THE ▭ MARK INDICATES THE PRIMARY CIRCUIT TO DISTINGUISH THE PRIMARY FROM THE SECONDARY CIRCUIT. PAY ATTENTION NOT TO RECEIVE AN ELECTRIC SHOCK DURING REPAIR AND SERVICE OF THE PRODUCTS.

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED WITH THE MARK ⚠ HAVE THE SPECIAL CHARACTERISTICS FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SAME TYPE.


TO MOTHER PWB CN005
V_COIL
CN00V QGA3901C1-02
CN005 QGB2514J1-44
IC401 ② 45Vp-p(V)
IC401 ③ 27Vp-p(V)
IC401 ⑤ 2.5Vp-p(V)
IC401 ⑦ 2.6Vp-p(V)
LIVE (⊥)
ISOLATED (⊥)
VERTICAL_OUTPUT
IC401 AN5539-LF
STAND.BY POWER
IC902 QAL0256-001
POSISTOR
TH901 QAD0137-4R5
DEGAUSS RELAY
RY902 QSK0119-001
POWER RELAY
RY901 QSK0119-001
DEGAUSS COIL
CN00D QGA7901C1-02
L01 QQW0112-001
D901 RBV-406M
T901 QQS0091-001
IC901 230Vp-p(H)
OCP_90V
OCP_140V
Q904 2SA1370/E/
Q903 2SA1370/E/
L902 QQR0646-006
SW.REGURATOR
IC901 STR-F6658B/F7
FEED_BACK
IC903 SE140N
ERROR.AMP
PC901 TLP721F(D4-GR)
PC902 TLP759F/D4/
H.FEEDBACK
POWER SUPPLY BLOCK
LINE_FILTER
L901 QQR0676-004
Z901 ERZV10V621CS
F901 QMF51D2-6R3J1 250V/6.3AH
AC_INLET
CN00P QGA7901C1-02
QSW0669-001 MAIN_SWITCH
QMC8004-001 AC_INLET
IC904 TA79012S
-12V_REGULATOR
IC905 BA12T
12V_REGLATOR
IC906 BA05T
5V_REGULATOR
IC907 SI-8050S
7V_REGULATOR
IC801 AN5265
AUDIO_OUTPUT
CN0S1 QGA2501C5-06Z
FOR ADJUSTMENT CONNECTOR
CN00S QGA2501C5-03Z
SPEAKER
L801 4.7 QQL244K-4R7Z
Q905
Q911 2SC2229/Y/
Q401
V_FB
V_OFF
H_S_LMT
SDA0
SCL0
DEF_POW
VOFF_DET
B1_LST
HD_OUT
VD_OUT
H_PULSE
X_RAY
ABL
V_DRIVE
2FH_HV
POWER
OCP_DET
V_BLK
M14V
140V
90V
14V
M12V
12V
7V
5VD

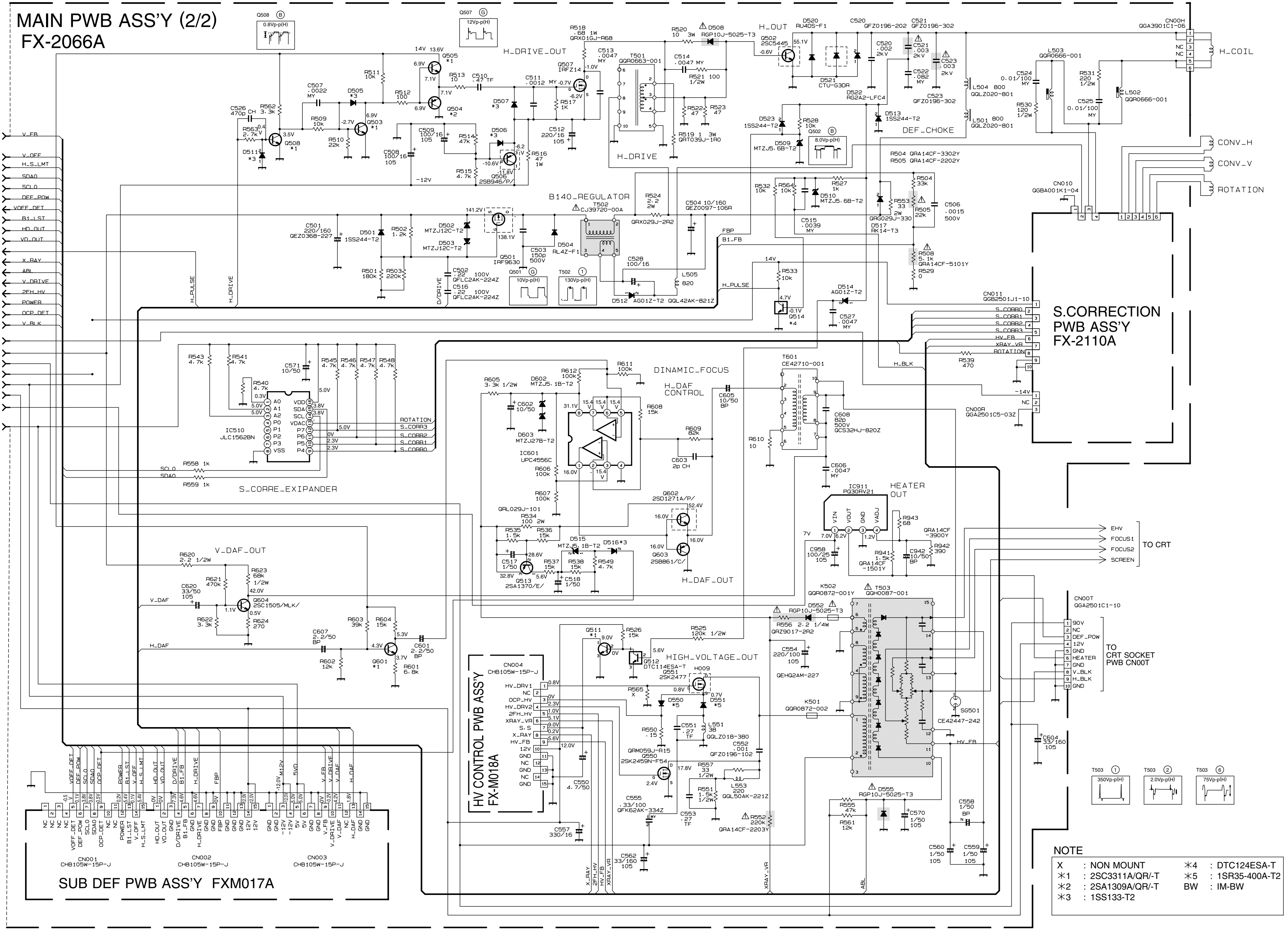
MAIN PWB ASS'Y (1/2)
FX-2066A

NOTE

X	: NON MOUNT
✱1	: 2SC3311A/QR/-T
✱2	: 2SA1309A/QR/-T
✱3	: 1SS133-T2
✱4	: DTC124ESA-T
BW	: IM-BW

MAIN PWB CIRCUIT DIAGRAM (2/2)

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED WITH THE MARK ⚠ HAVE THE SPECIAL CHARACTERISTICS FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SAME TYPE.

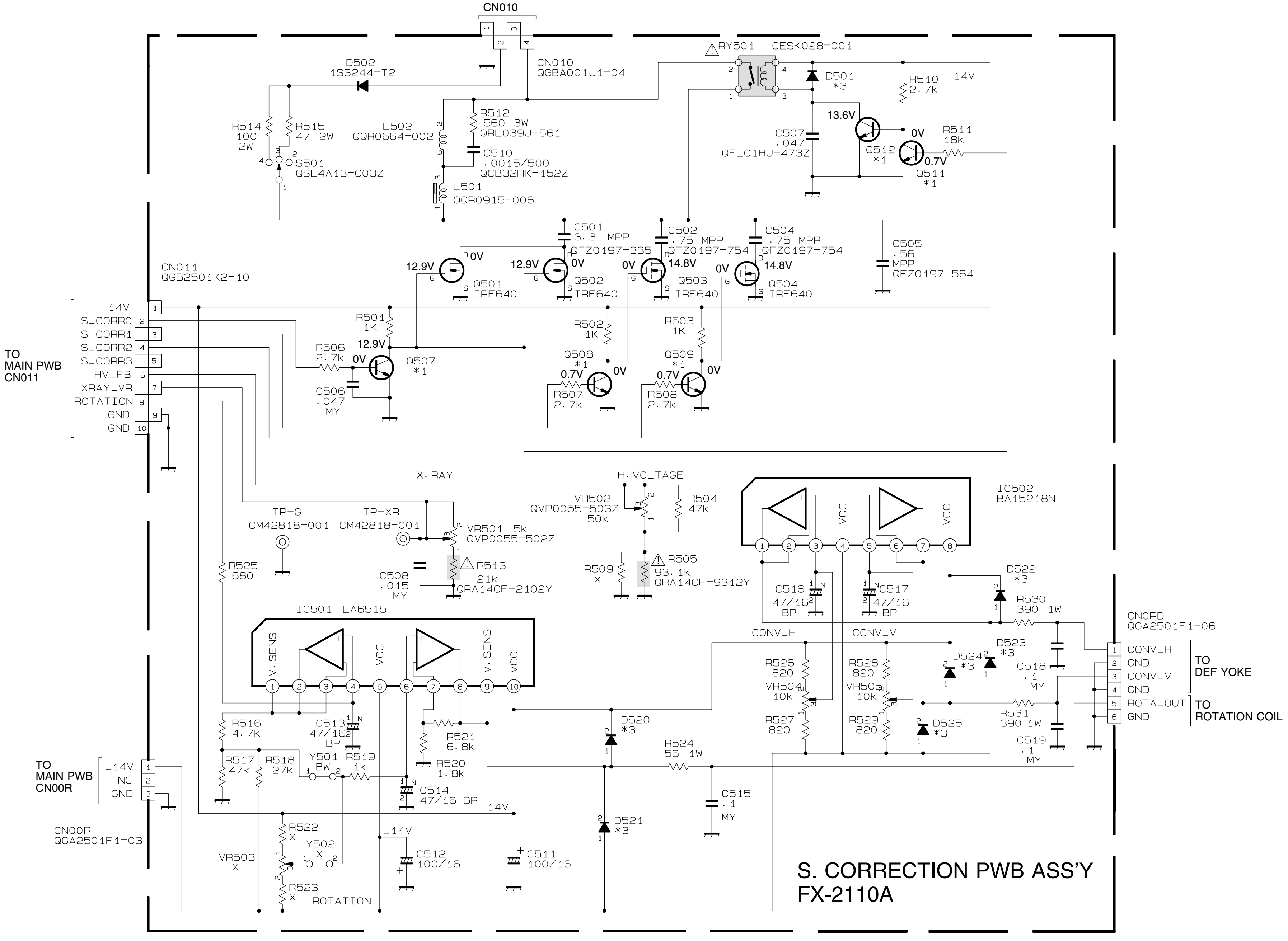

MAIN PWB ASS'Y (2/2)
FX-2066A
H_DRIVE_OUT
H_OUT
H_COIL
CONV_H
CONV_V
ROTATION
H_DRIVE
DEF_CHOKE
B140_REGULATOR
S.CORRECTION PWB ASS'Y FX-2110A
DINAMIC_FOCUS
H_DAF CONTROL
S_CORRE_EXIPANDER
V_DAF_OUT
H_DAF_OUT
HEATER OUT
HIGH_VOLTAGE_OUT
HV CONTROL PWB ASS'Y FX-M018A
SUB DEF PWB ASS'Y FXM017A
TO CRT
EHV
FOCUS1
FOCUS2
SCREEN
TO CRT SOCKET PWB CN00T
CN001 CHB105W-15P-J
CN002 CHB105W-15P-J
CN003 CHB105W-15P-J
CN004 CHB105W-15P-J
CN00H QGA3901C1-06
CN010 QGBA001K1-04
CN011 QGB2501J1-10
CN00R QGA2501C5-03Z
CN00T QGA2501C1-10
T501 QQR0663-001
T502 CJ39720-00A
T503 QQH0087-001
T601 CE42710-001
IC510 JLC1562BN
IC601 UPC4556C
IC911 PQ30RV21
Q501 IRF9630
Q502 2SC5445
Q507 IRFZ14
Q505 2SB946/P/
Q550 2SK2459N-F54
Q551 2SK2477
Q602 2SD1271A/P/
Q603 2SB861/C/
Q604 2SC1505/MLK/
Q513 2SA1370/E/
Q512 DTC114ESA-T
V_FB
V_OFF
H_S_LMT
SDA0
SCL0
DEF_POW
VOFF_DET
B1_LST
HD_OUT
VD_OUT
H_PULSE
X_RAY
ABL
V_DRIVE
2FH_HV
POWER
OCP_DET
V_BLK
M14V
140V
90V
14V
M12V
12V
7V
5VD
Q508 0.8Vp-p(H)
Q507 12Vp-p(H)
Q501 10Vp-p(H)
T502 130Vp-p(H)
Q502 8.0Vp-p(H)
CN002 ④ 10Vp-p(H)
CN002 ⑦ 8.0Vp-p(H)
CN002 ⑩ 5.0Vp-p(H)
CN003 ⑨ 2.0Vp-p(V)
CN003 ⑩ 2.4Vp-p(V)
CN003 ⑪ 0.6Vp-p(H)
CN003 ⑬ 1.2Vp-p(H)
T503 ① 350Vp-p(H)
T503 ② 2.0Vp-p(H)
T503 ⑥ 75Vp-p(H)

NOTE

X : NON MOUNT		✳4	: DTC124ESA-T
✳1	: 2SC3311A/QR/-T	✳5	: 1SR35-400A-T2
✳2	: 2SA1309A/QR/-T	BW	: IM-BW
✳3	: 1SS133-T2		

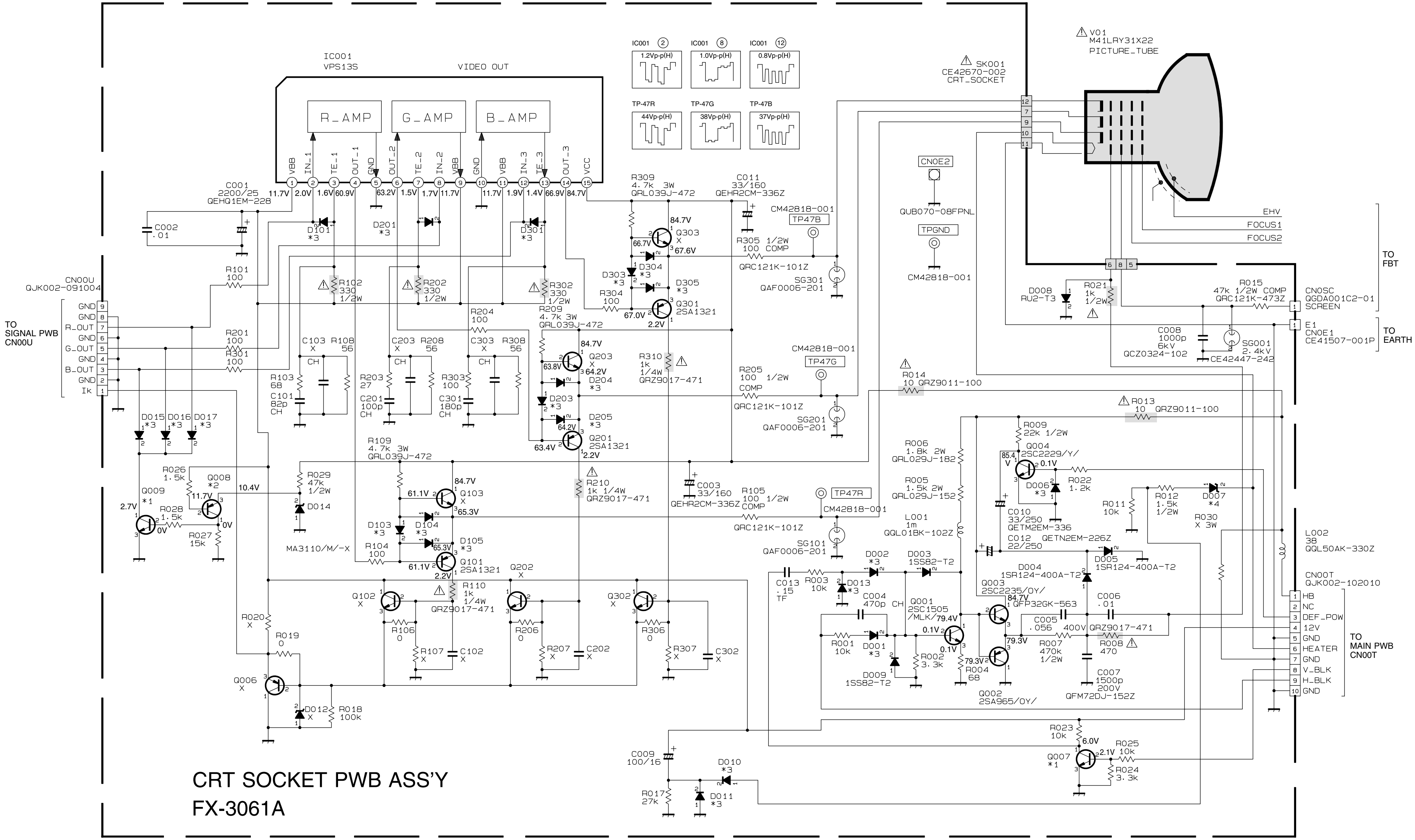
S. CORRECTION PWB CIRCUIT DIAGRAM

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED WITH THE MARK ⚠ HAVE THE SPECIAL CHARACTERISTICS FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SAME TYPE.


TO MAIN PWB
CN010
CN010
QGBA001J1-04
D502
1SS244-T2
R514
100
2W
R515
47 2W
S501
QSL4A13-C03Z
L502
QQR0664-002
R512
560 3W
QRL039J-561
C510
.0015/500
QCB32HK-152Z
L501
QQR0915-006
RY501 CESK028-001
D501
*3
R510
2.7k
14V
13.6V
C507
.047
QFLC1HJ-473Z
Q512
*1
0V
R511
18k
0.7V
Q511
*1
C501
3.3 MPP
QFZ0197-335
C502
.75 MPP
QFZ0197-754
C504
.75 MPP
QFZ0197-754
C505
.56
MPP
QFZ0197-564
12.9V
0V
Q501
IRF640
12.9V
0V
Q502
IRF640
0V
14.8V
Q503
IRF640
0V
14.8V
Q504
IRF640
CN011
QGB2501K2-10
TO
MAIN PWB
CN011
14V
S_CORR0
S_CORR1
S_CORR2
S_CORR3
HV_FB
XRAY_VR
ROTATION
GND
GND
R501
1K
12.9V
R506
2.7k
0V
Q507
*1
C506
.047
MY
R502
1K
Q508
*1
0.7V
0V
R507
2.7k
R503
1K
Q509
*1
0.7V
0V
R508
2.7k
X.RAY
H.VOLTAGE
VR502
QVP0055-503Z
50k
R504
47k
TP-G
CM42818-001
TP-XR
CM42818-001
VR501 5k
QVP0055-502Z
R513
21k
QRA14CF-2102Y
C508
.015
MY
R509
X
R505
93.1k
QRA14CF-9312Y
R525
680
IC502
BA15218N
-VCC
VCC
C516
47/16
BP
C517
47/16
BP
D522
*3
R530
390 1W
CN0RD
QGA2501F1-06
CONV_H
CONV_V
D523
*3
D524
*3
C518
.1
MY
R526
820
VR504
10k
R527
820
R528
820
VR505
10k
R529
820
D525
*3
R531
390 1W
C519
.1
MY
CONV_H
GND
CONV_V
GND
ROTA_OUT
GND
TO
DEF YOKE
TO
ROTATION COIL
IC501 LA6515
V.SENS
-VCC
V.SENS
VCC
R516
4.7k
C513
47/16
BP
R521
6.8k
R520
1.8k
D520
*3
R524
56 1W
C515
.1
MY
TO
MAIN PWB
CN00R
-14V
NC
GND
CN00R
QGA2501F1-03
R517
47k
R518
27k
Y501
BW
R519
1k
C514
47/16 BP
14V
D521
*3
R522
X
Y502
X
VR503
X
R523
X
ROTATION
-14V
C512
100/16
C511
100/16
S. CORRECTION PWB ASS'Y
FX-2110A

CRT SOCKET PWB CIRCUIT DIAGRAM

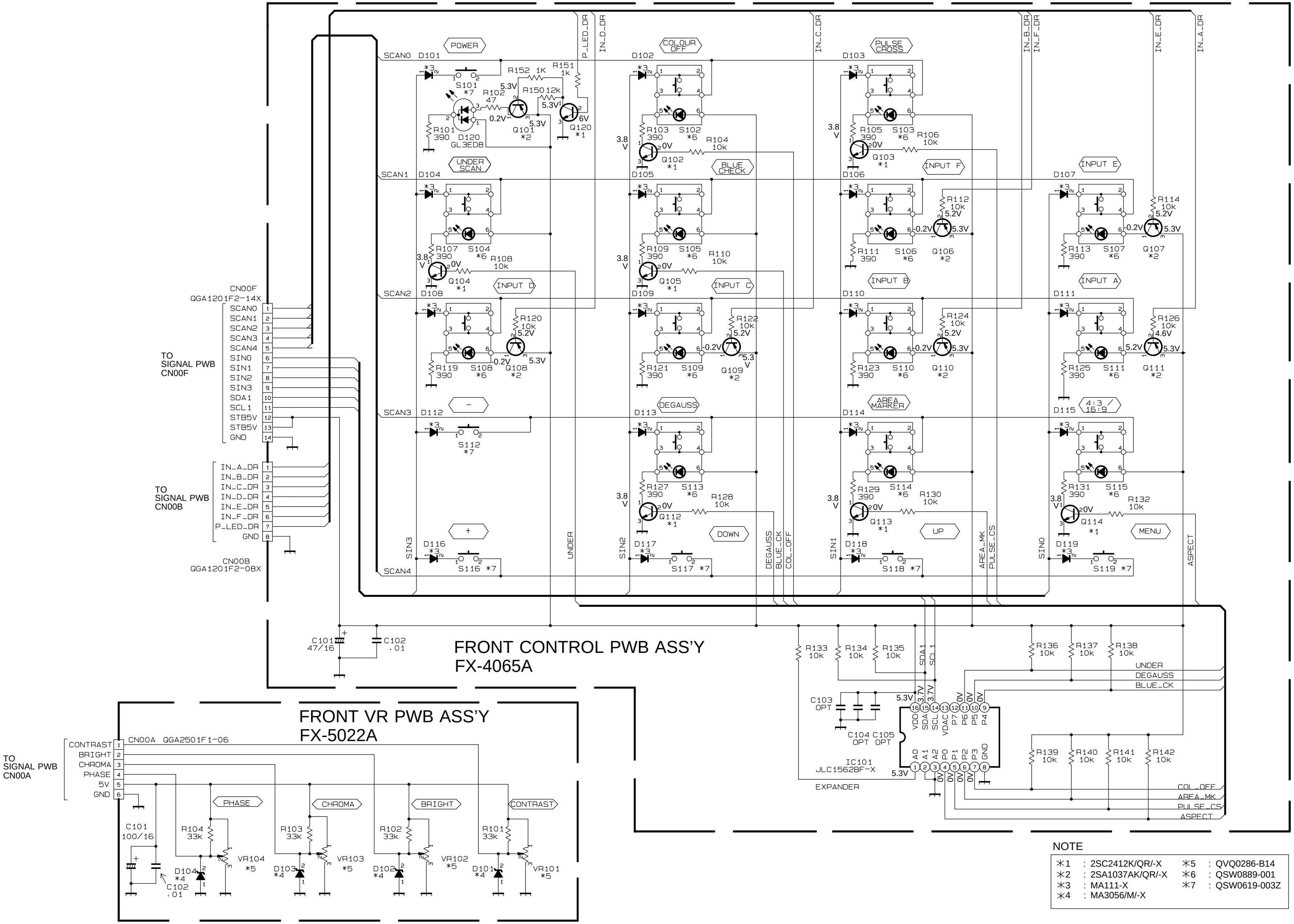
IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED WITH THE MARK ⚠ HAVE THE SPECIAL CHARACTERISTICS FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SAME TYPE.


CRT SOCKET PWB ASS'Y
FX-3061A
IC001 VPS13S VIDEO OUT
R_AMP
G_AMP
B_AMP
VBB IN_1 TE_1 OUT_1 GND OUT_2 TE_2 IN_2 VBB GND VBB IN_3 TE_3 OUT_3 VCC
IC001 ② 1.2Vp-p(H)
IC001 ⑧ 1.0Vp-p(H)
IC001 ⑫ 0.8Vp-p(H)
TP-47R 44Vp-p(H)
TP-47G 38Vp-p(H)
TP-47B 37Vp-p(H)
⚠ V01 M41LRY31X22 PICTURE_TUBE
⚠ SK001 CE42670-002 CRT_SOCKET
CN0E2
QUB070-08FPNL
TPGND
CM42818-001
CN00U QJK002-091004
TO SIGNAL PWB CN00U
GND R_OUT GND G_OUT GND B_OUT GND IK
EHV
FOCUS1
FOCUS2
TO FBT
CN0SC QGDA001C2-01 SCREEN
E1 CN0E1 CE41507-001P
TO EARTH
L002 38 QQL50AK-330Z
CN00T QJK002-102010
HB NC DEF_POW 12V GND HEATER GND V_BLK H_BLK GND
TO MAIN PWB CN00T
C001 2200/25 QEHQ1EM-228
C002 .01
R309 4.7k 3W QRL039J-472
C011 33/160 QEHR2CM-336Z
R305 1/2W 100 COMP QRC121K-101Z
SG301 QAF0006-201
SG201 QAF0006-201
SG101 QAF0006-201
SG001 2.4kV CE42447-242
C008 1000p 6kV QCZ0324-102
R015 47k 1/2W COMP QRC121K-473Z
R021 1k 1/2W
D008 RU2-T3
R014 10 QRZ9011-100
R013 10 QRZ9011-100
R205 100 1/2W COMP QRC121K-101Z
R105 100 1/2W COMP QRC121K-101Z
R310 1k 1/4W QRZ9017-471
R210 1k 1/4W QRZ9017-471
R110 1k 1/4W QRZ9017-471
R209 4.7k 3W QRL039J-472
R109 4.7k 3W QRL039J-472
Q303 X
Q301 2SA1321
Q203 X
Q201 2SA1321
Q103 X
Q101 2SA1321
Q102 X
Q202 X
Q302 X
Q006 X
Q008 *2
Q009 *1
D014 MA3110/M/-X
C003 33/160 QEHR2CM-336Z
R006 1.8k 2W QRL029J-182
R005 1.5k 2W QRL029J-152
L001 1m QQL01BK-102Z
C010 33/250 QETM2EM-336
C012 22/250 QETN2EM-226Z
Q004 2SC2229/Y/
Q003 2SC2235/OY/
Q001 2SC1505 /MLK/
Q002 2SA965/OY/
D003 1SS82-T2
D004 1SR124-400A-T2
D005 1SR124-400A-T2
D009 1SS82-T2
GFP32GK-563
C005 .056 400V QRZ9017-471
R008 470 ⚠
C007 1500p 200V QFM72DJ-152Z
R007 470k 1/2W
C013 .15 TF
Q007 *1
C009 100/16
D010 *3
D011 *3
R017 27k
R023 10k
R025 10k
R024 3.3k

NOTE

X	:	NON MOUNT	⁎4	: MA3051/M/-X
⁎1	:	2SC2412K/QR/-X	⁎5	: DTC124EKA-X
⁎2	:	2SA1037AK/QR/-X	⁎6	: DTA124EKA-X
⁎3	:	MA111-X		

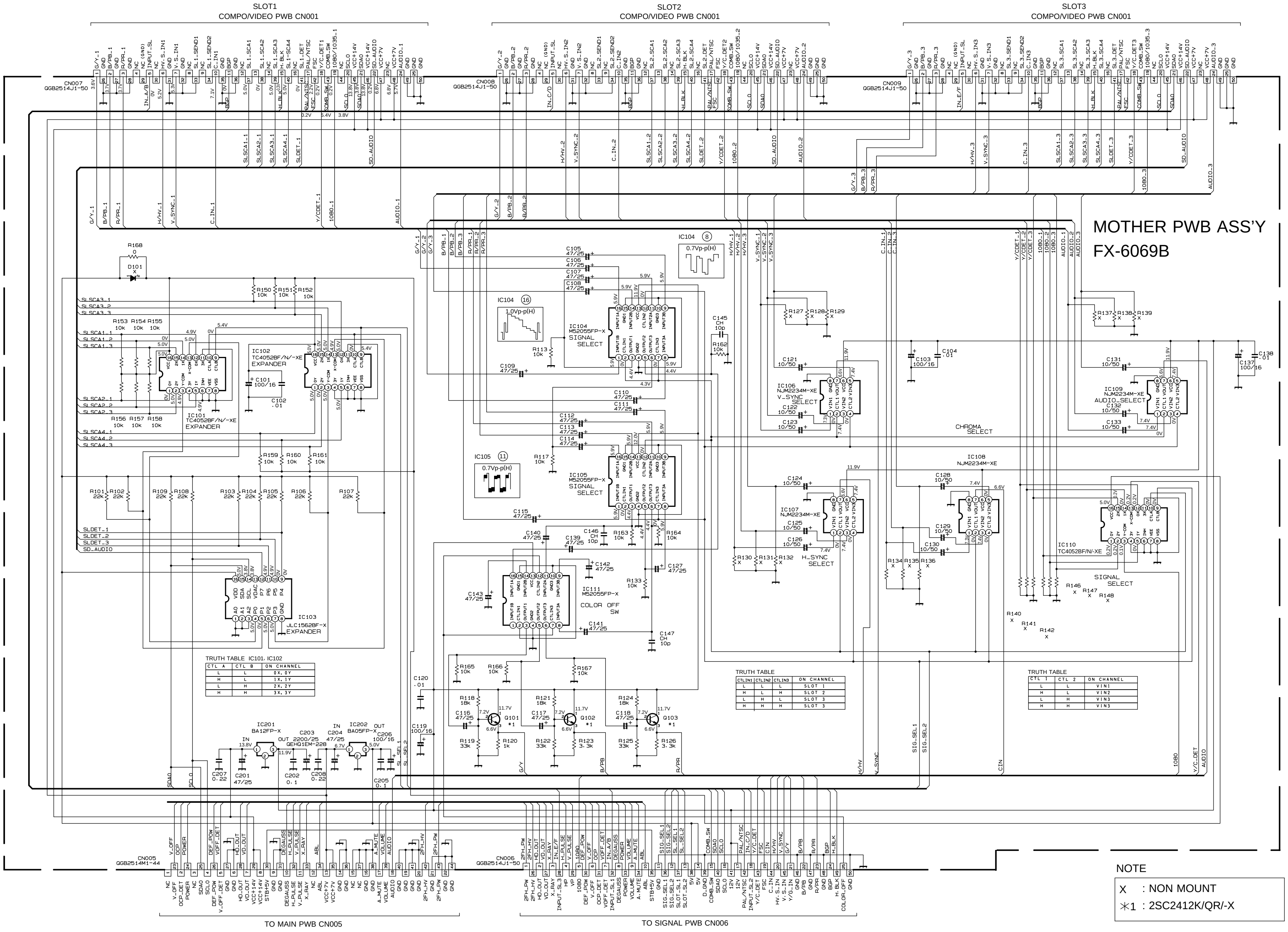
FRONT CONTROL AND FRONT VR PWB CIRCUIT DIAGRAMS


FRONT CONTROL PWB ASS'Y
FX-4065A
FRONT VR PWB ASS'Y
FX-5022A
TO SIGNAL PWB CN00F
CN00F
QGA1201F2-14X
SCAN0
SCAN1
SCAN2
SCAN3
SCAN4
SIN0
SIN1
SIN2
SIN3
SDA1
SCL1
STB5V
STB5V
GND
TO SIGNAL PWB CN00B
IN_A_DR
IN_B_DR
IN_C_DR
IN_D_DR
IN_E_DR
IN_F_DR
P_LED_DR
GND
CN00B
QGA1201F2-08X
POWER
COLOUR OFF
PULSE CROSS
UNDER SCAN
BLUE CHECK
INPUT F
INPUT E
INPUT D
INPUT C
INPUT B
INPUT A
–
DEGAUSS
AREA MARKER
4:3 / 16:9
+
DOWN
UP
MENU
D101
D102
D103
D104
D105
D106
D107
D108
D109
D110
D111
D112
D113
D114
D115
D116
D117
D118
D119
D120
GL3ED8
S101 *7
S102 *6
S103 *6
S104 *6
S105 *6
S106 *6
S107 *6
S108 *6
S109 *6
S110 *6
S111 *6
S112 *7
S113 *6
S114 *6
S115 *6
S116 *7
S117 *7
S118 *7
S119 *7
Q101 *2
Q102 *1
Q103 *1
Q104 *1
Q105 *1
Q106 *2
Q107 *2
Q108 *2
Q109 *2
Q110 *2
Q111 *2
Q112 *1
Q113 *1
Q114 *1
Q120 *1
R101 390
R102 47
R103 390
R104 10k
R105 390
R106 10k
R107 390
R108 10k
R109 390
R110 10k
R111 390
R112 10k
R113 390
R114 10k
R119 390
R120 10k
R121 390
R122 10k
R123 390
R124 10k
R125 390
R126 10k
R127 390
R128 10k
R129 390
R130 10k
R131 390
R132 10k
R150 12k
R151 1k
R152 1K
R133 10k
R134 10k
R135 10k
R136 10k
R137 10k
R138 10k
R139 10k
R140 10k
R141 10k
R142 10k
C101 47/16
C102 .01
C103 OPT
C104 OPT
C105 OPT
IC101
JLC1562BF-X
EXPANDER
VDD
SDA
SCL
VDAC
P7
P6
P5
P4
A0
A1
A2
P0
P1
P2
P3
GND
5.3V
3.7V
3.8V
0V
0.2V
5.2V
4.6V
6V
UNDER
DEGAUSS
BLUE_CK
COL_OFF
AREA_MK
PULSE_CS
ASPECT
TO SIGNAL PWB CN00A
CN00A QGA2501F1-06
CONTRAST
BRIGHT
CHROMA
PHASE
5V
GND
C101 100/16
C102 .01
R101 33k
R102 33k
R103 33k
R104 33k
VR101 *5
VR102 *5
VR103 *5
VR104 *5
D101 *4
D102 *4
D103 *4
D104 *4

NOTE

＊1	:	2SC2412K/QR/-X	＊5	:	QVQ0286-B14
＊2	:	2SA1037AK/QR/-X	＊6	:	QSW0889-001
＊3	:	MA111-X	＊7	:	QSW0619-003Z
＊4	:	MA3056/M/-X			

MOTHER PWB CIRCUIT DIAGRAM


SLOT1
COMPO/VIDEO PWB CN001
SLOT2
COMPO/VIDEO PWB CN001
SLOT3
COMPO/VIDEO PWB CN001
CN007
QGB2514J1-50
CN008
QGB2514J1-50
CN009
QGB2514J1-50
IC101
TC4052BF/N/-XE
EXPANDER
IC102
TC4052BF/N/-XE
EXPANDER
IC103
JLC1562BF-X
EXPANDER
IC104
M52055FP-X
SIGNAL SELECT
IC104 ⑧ 0.7Vp-p(H)
IC104 ⑯ 1.0Vp-p(H)
IC105
M52055FP-X
SIGNAL SELECT
IC105 ⑪ 0.7Vp-p(H)
IC106
NJM2234M-XE
V_SYNC SELECT
IC107
NJM2234M-XE
H_SYNC SELECT
IC108
NJM2234M-XE
CHROMA SELECT
IC109
NJM2234M-XE
AUDIO_SELECT
IC110
TC4052BF/N/-XE
SIGNAL SELECT
IC111
M52055FP-X
COLOR OFF SW
IC201
BA12FP-X
IC202
BA05FP-X
C203
2200/25
QEHQ1EM-228
Q101 *1
Q102 *1
Q103 *1
CN005
QGB2514M1-44
NC
V_OFF
OCP_DET
POWER
NC
SDAO
SCLO
DEF_POW
V_OFF_DET
GND
GND
HD_OUT
VD_OUT
VCC+14V
VCC+14V
STB+5V
GND
GND
DEGAUSS
H_PULSE
V_PULSE
X_RAY
NC
ABL
VCC+7V
VCC+7V
GND
GND
NC
NC
GND
GND
A_MUTE
VOLUME
AUDIO
GND
GND
GND
GND
2FH_HV
GND
2FH_PW
GND
GND
TO MAIN PWB CN005
CN006
QGB2514J1-50
2FH_PW
2FH_HV
HD_OUT
VD_OUT
X_RAY
INPUT_SL3
HP
VP
1080
DEF_POW
V_OFF
OCP_DET
VOFF_DET
INPUT_SL1
DEGAUSS
POWER
VOLUME
A.MUTE
ABL
STB+5V
GND
SIG_SEL1
SIG_SEL2
SLOT_SL1
SLOT_SL2
5V
5V
D_GND
COMB_SW
SDAO
SCLO
12V
12V
PAL/NTSC
INPUT_SL2
Y/C_DET
FSC
C_IN
HV.S_IN
V.S_IN
Y/G_IN
GND
B/PB
GND
R/PR
GND
BGP
H.BLK
COLOR_OFF
GND
TO SIGNAL PWB CN006

MOTHER PWB ASS'Y
FX-6069B

TRUTH TABLE IC101, IC102

CTL A	CTL B	ON CHANNEL
L	L	0X, 0Y
H	L	1X, 1Y
L	H	2X, 2Y
H	H	3X, 3Y

TRUTH TABLE

CTLIN1	CTLIN2	CTLIN3	ON CHANNEL
L	L	L	SLOT 1
H	L	H	SLOT 2
L	H	L	SLOT 3
H	H	H	SLOT 3

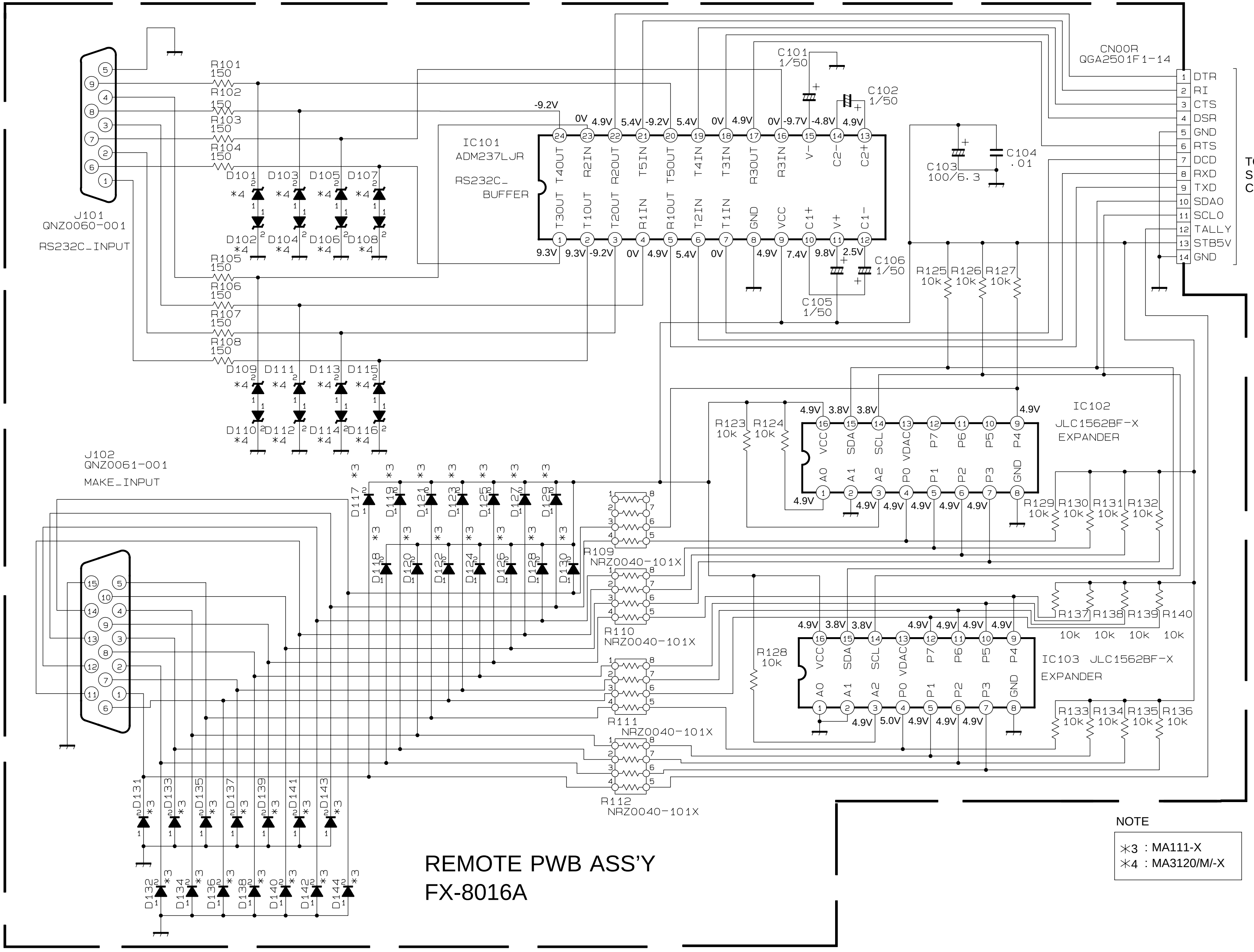
TRUTH TABLE

CTL 1	CTL 2	ON CHANNEL
L	L	VIN1
H	L	VIN2
L	H	VIN3
H	H	VIN3

NOTE

X : NON MOUNT
*1 : 2SC2412K/QR/-X

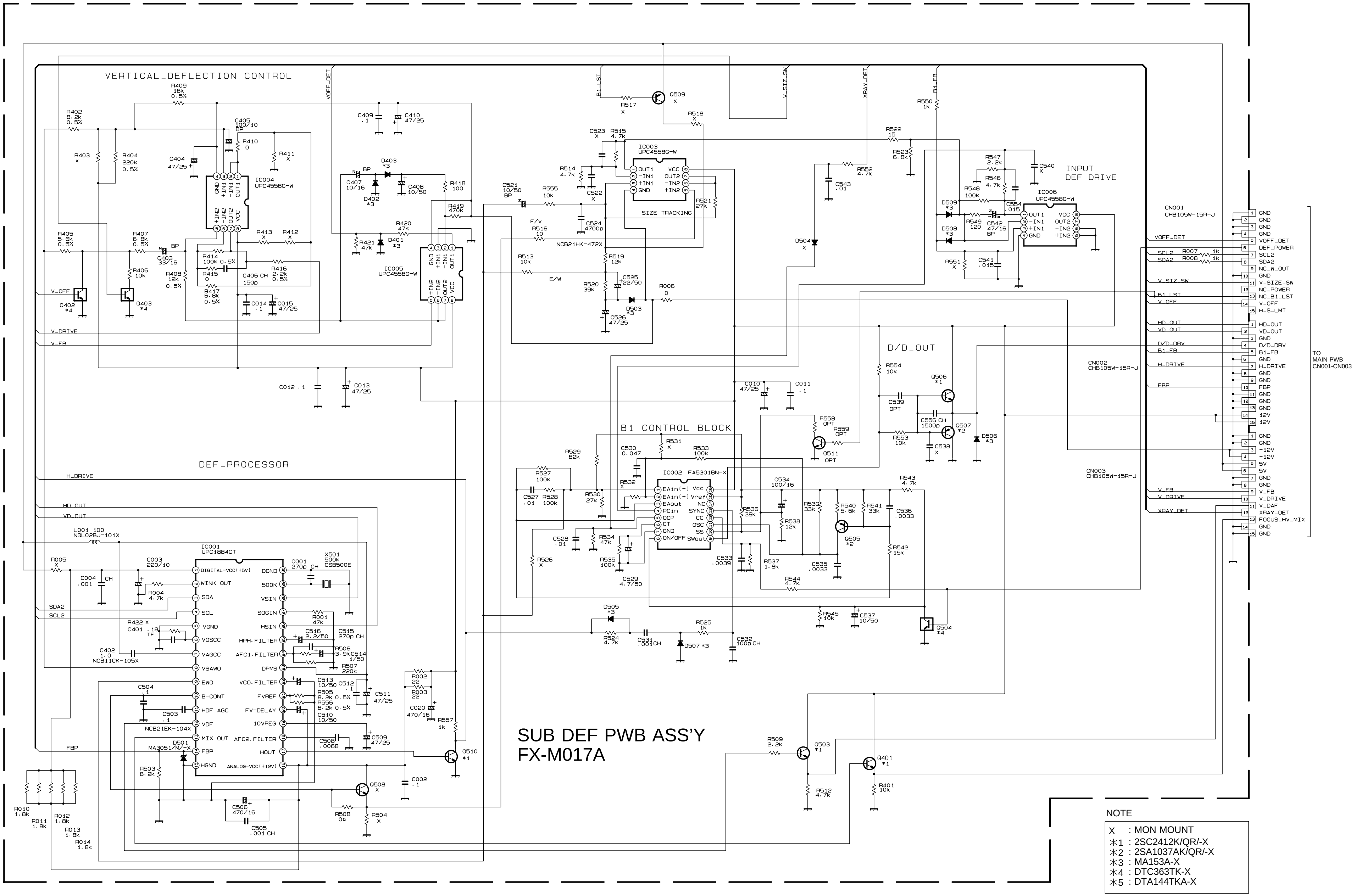
REMOTE PWB CIRCUIT DIAGRAM


J101
QNZ0060-001
RS232C_INPUT
R101 150
R102 150
R103 150
R104 150
R105 150
R106 150
R107 150
R108 150
D101 D102 D103 D104 D105 D106 D107 D108
D109 D110 D111 D112 D113 D114 D115 D116
IC101
ADM237LJR
RS232C_
BUFFER
T4OUT R2IN R2OUT T5IN T5OUT T4IN T3IN R3OUT R3IN V- C2- C2+
T3OUT T1OUT T2OUT R1IN R1OUT T2IN T1IN GND VCC C1+ V+ C1-
-9.2V 0V 4.9V 5.4V -9.2V 5.4V 0V 4.9V 0V -9.7V -4.8V 4.9V
9.3V 9.3V -9.2V 0V 4.9V 5.4V 0V 4.9V 7.4V 9.8V 2.5V
C101 1/50
C102 1/50
C103 100/6.3
C104 .01
C105 1/50
C106 1/50
CN00R
QGA2501F1-14
1 DTR
2 RI
3 CTS
4 DSR
5 GND
6 RTS
7 DCD
8 RXD
9 TXD
10 SDA0
11 SCL0
12 TALLY
13 STB5V
14 GND
TO
SIGNAL PWB
CN00R
R125 10k
R126 10k
R127 10k
IC102
JLC1562BF-X
EXPANDER
VCC SDA SCL VDAC P7 P6 P5 P4
A0 A1 A2 P0 P1 P2 P3 GND
4.9V 3.8V 3.8V 4.9V
R123 10k
R124 10k
R129 10k
R130 10k
R131 10k
R132 10k
J102
QNZ0061-001
MAKE_INPUT
D117 D118 D119 D120 D121 D122 D123 D124 D125 D126 D127 D128 D129 D130
R109
NRZ0040-101X
R110
NRZ0040-101X
R111
NRZ0040-101X
R112
NRZ0040-101X
R137 R138 R139 R140
10k 10k 10k 10k
IC103 JLC1562BF-X
EXPANDER
R128 10k
4.9V 3.8V 3.8V 4.9V 4.9V 4.9V 4.9V
4.9V 5.0V 4.9V 4.9V 4.9V
R133 10k
R134 10k
R135 10k
R136 10k
D131 D132 D133 D134 D135 D136 D137 D138 D139 D140 D141 D142 D143 D144
*3
*4
REMOTE PWB ASS'Y
FX-8016A

NOTE

⁎3 : MA111-X
⁎4 : MA3120/M/-X

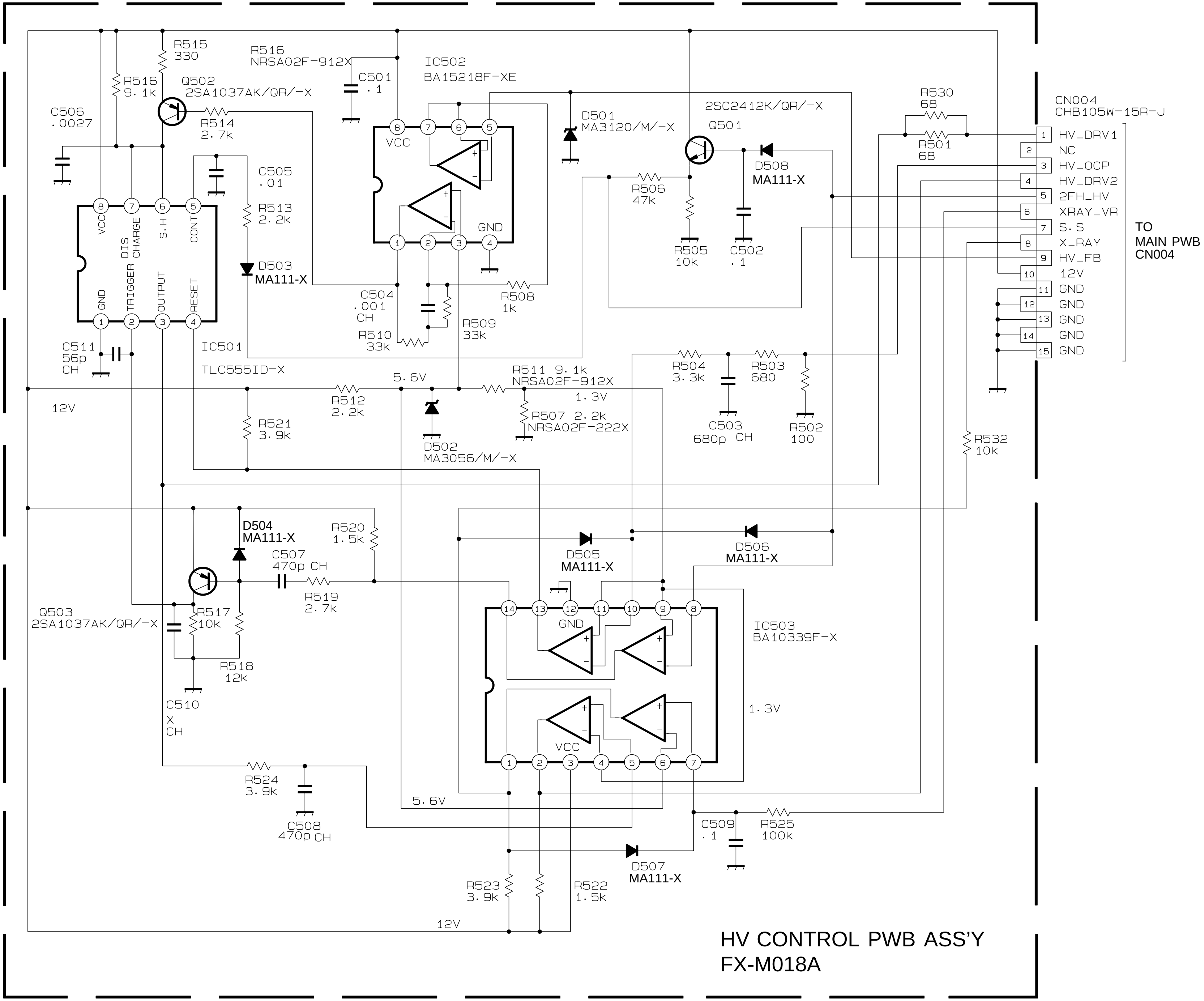
SUB DEF PWB CIRCUIT DIAGRAM


VERTICAL_DEFLECTION CONTROL
DEF_PROCESSOR
B1 CONTROL BLOCK
D/D_OUT
INPUT DEF DRIVE
SIZE TRACKING
IC001 UPC1884CT
IC002 FA5301BN-X
IC003 UPC4558G-W
IC004 UPC4558G-W
IC005 UPC4558G-W
IC006 UPC4558G-W
CN001 CHB105W-15R-J
CN002 CHB105W-15R-J
CN003 CHB105W-15R-J
TO MAIN PWB CN001-CN003
SUB DEF PWB ASS'Y
FX-M017A

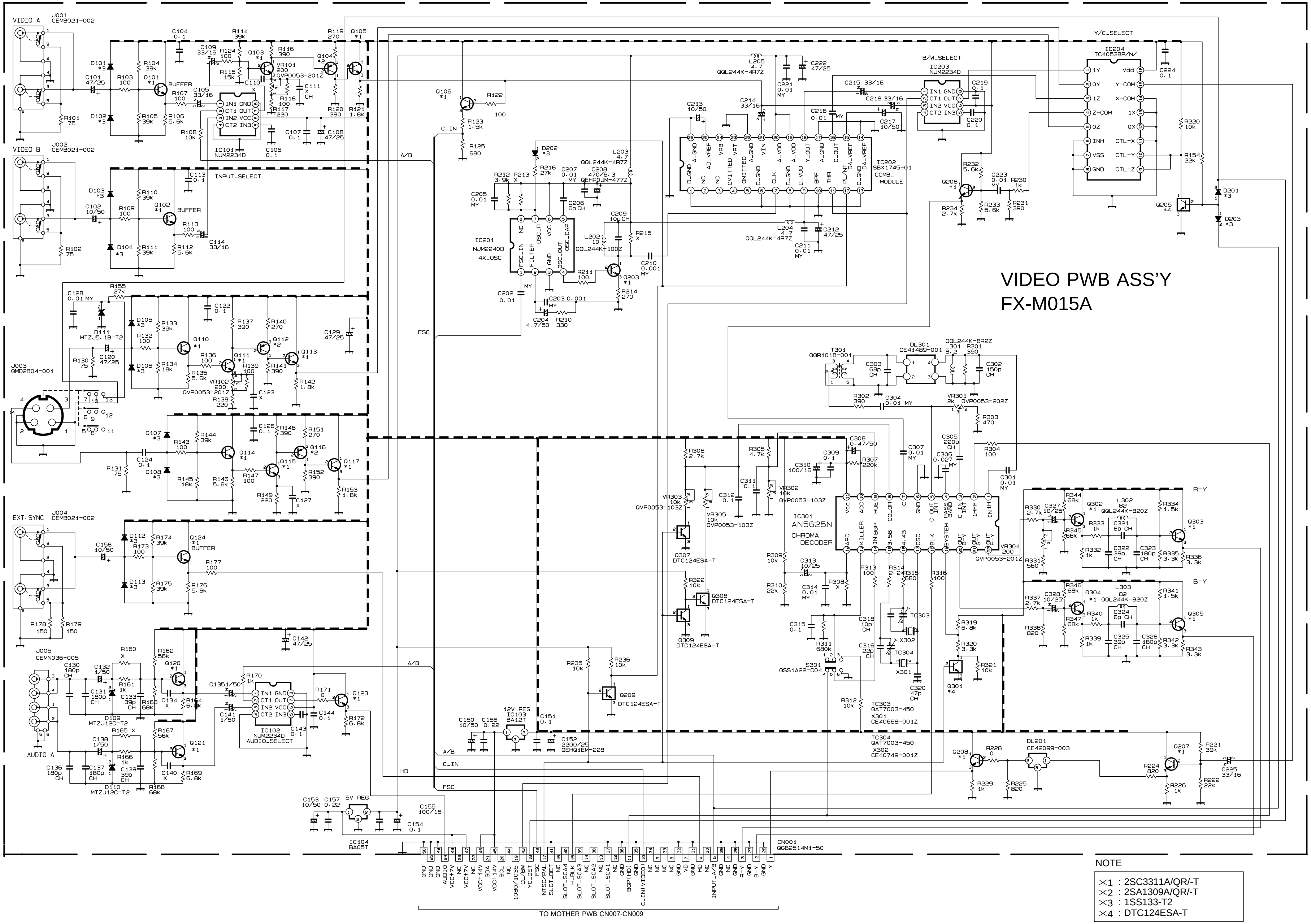
NOTE

X : MON MOUNT
⁎1 : 2SC2412K/QR/-X
⁎2 : 2SA1037AK/QR/-X
⁎3 : MA153A-X
⁎4 : DTC363TK-X
⁎5 : DTA144TKA-X

HV CONTROL PWB CIRCUIT DIAGRAM


R515
330
R516
NRSA02F-912X
C501
.1
IC502
BA15218F-XE
R516
9.1k
Q502
2SA1037AK/QR/-X
C506
.0027
R514
2.7k
VCC
8
7
6
5
GND
1
2
3
4
D501
MA3120/M/-X
2SC2412K/QR/-X
Q501
R530
68
R501
68
CN004
CHB105W-15R-J
1 HV_DRV1
2 NC
3 HV_OCP
4 HV_DRV2
5 2FH_HV
6 XRAY_VR
7 S.S
8 X_RAY
9 HV_FB
10 12V
11 GND
12 GND
13 GND
14 GND
15 GND
TO
MAIN PWB
CN004
C505
.01
R513
2.2k
D503
MA111-X
D508
MA111-X
R506
47k
R505
10k
C502
.1
VCC
DIS
CHARGE
TRIGGER
S.H
OUTPUT
CONT
RESET
GND
C504
.001
CH
R508
1k
R510
33k
R509
33k
C511
56p
CH
IC501
TLC555ID-X
5.6V
R511 9.1k
NRSA02F-912X
1.3V
R504
3.3k
R503
680
12V
R512
2.2k
R521
3.9k
R507 2.2k
NRSA02F-222X
D502
MA3056/M/-X
C503
680p CH
R502
100
R532
10k
D504
MA111-X
R520
1.5k
C507
470p CH
R519
2.7k
D505
MA111-X
D506
MA111-X
Q503
2SA1037AK/QR/-X
R517
10k
R518
12k
C510
X
CH
14
13
12
11
10
9
8
GND
IC503
BA10339F-X
1.3V
VCC
1
2
3
4
5
6
7
R524
3.9k
C508
470p CH
5.6V
C509
.1
R525
100k
D507
MA111-X
R523
3.9k
R522
1.5k
12V
HV CONTROL PWB ASS'Y
FX-M018A

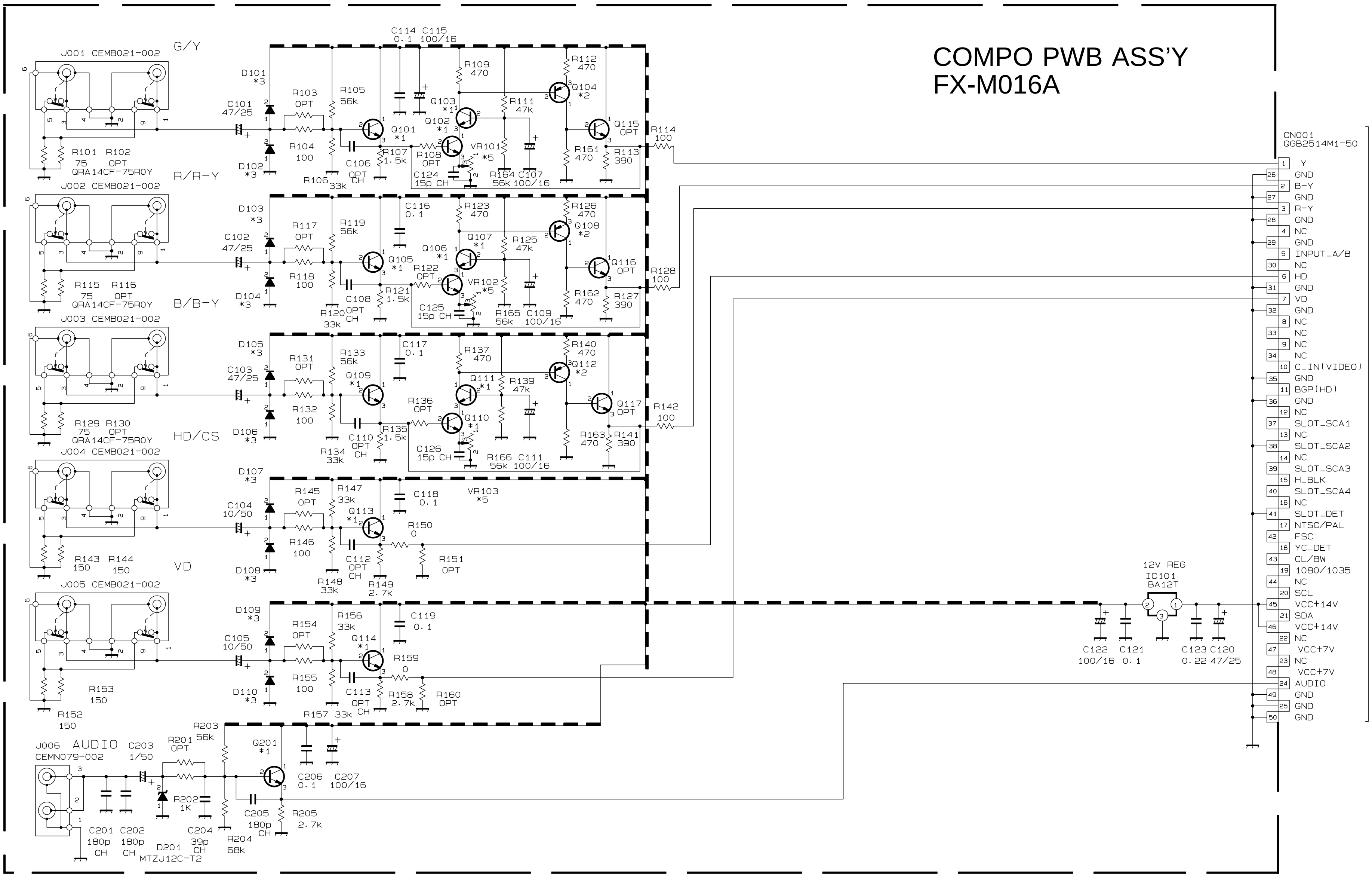
VIDEO PWB CIRCUIT DIAGRAM (BT-YA701P) [OPTION]


VIDEO PWB ASS'Y
FX-M015A
VIDEO A
J001 CEMB021-002
VIDEO B
J002 CEMB021-002
J003 QMD2B04-001
EXT.SYNC
J004 CEMB021-002
J005 CEMN036-005
AUDIO A
BUFFER
INPUT_SELECT
IC101 NJM2234D
IC102 NJM2234D AUDIO_SELECT
IC103 BA12T 12V REG
IC104 BA05T 5V REG
IC201 NJM2240D 4X_OSC
IC202 SBX1745-01 COMB. MODULE
IC203 NJM2234D B/W_SELECT
IC204 TC4053BP/N/ Y/C_SELECT
IC301 AN5625N CHROMA DECODER
T301 QQR1018-001
DL301 CE41489-001
DL201 CE42099-003
S301 QSS1A22-C04
TC303 QAT7003-450
TC304 QAT7003-450
X301 CE40668-001Z
X302 CE40749-001Z
L202 QQL244K-100Z
L203 QQL244K-4R7Z
L204 QQL244K-4R7Z
L205 QQL244K-4R7Z
L301 QQL244K-8R2Z
L302 QQL244K-820Z
L303 QQL244K-820Z
Q307 DTC124ESA-T
Q308 DTC124ESA-T
Q309 DTC124ESA-T
Q209 DTC124ESA-T
R-Y
B-Y
A/B
C_IN
FSC
HD
CN001 QGB2514M1-50
GND
GND
GND
AUDIO
VCC+7V
NC
VCC+7V
NC
VCC+14V
SDA
VCC+14V
SCL
NC
1080/1035
CL/BW
YC_DET
FSC
NTSC/PAL
SLOT_DET
NC
SLOT_SCA4
H_BLK
SLOT_SCA3
NC
SLOT_SCA2
NC
SLOT_SCA1
NC
GND
BGP(HD)
GND
C_IN(VIDEO)
NC
NC
GND
VD
GND
HD
GND
INPUT_A/B
GND
NC
GND
R-Y
GND
B-Y
GND
Y
TO MOTHER PWB CN007-CN009

NOTE

＊1 : 2SC3311A/QR/-T
＊2 : 2SA1309A/QR/-T
＊3 : 1SS133-T2
＊4 : DTC124ESA-T

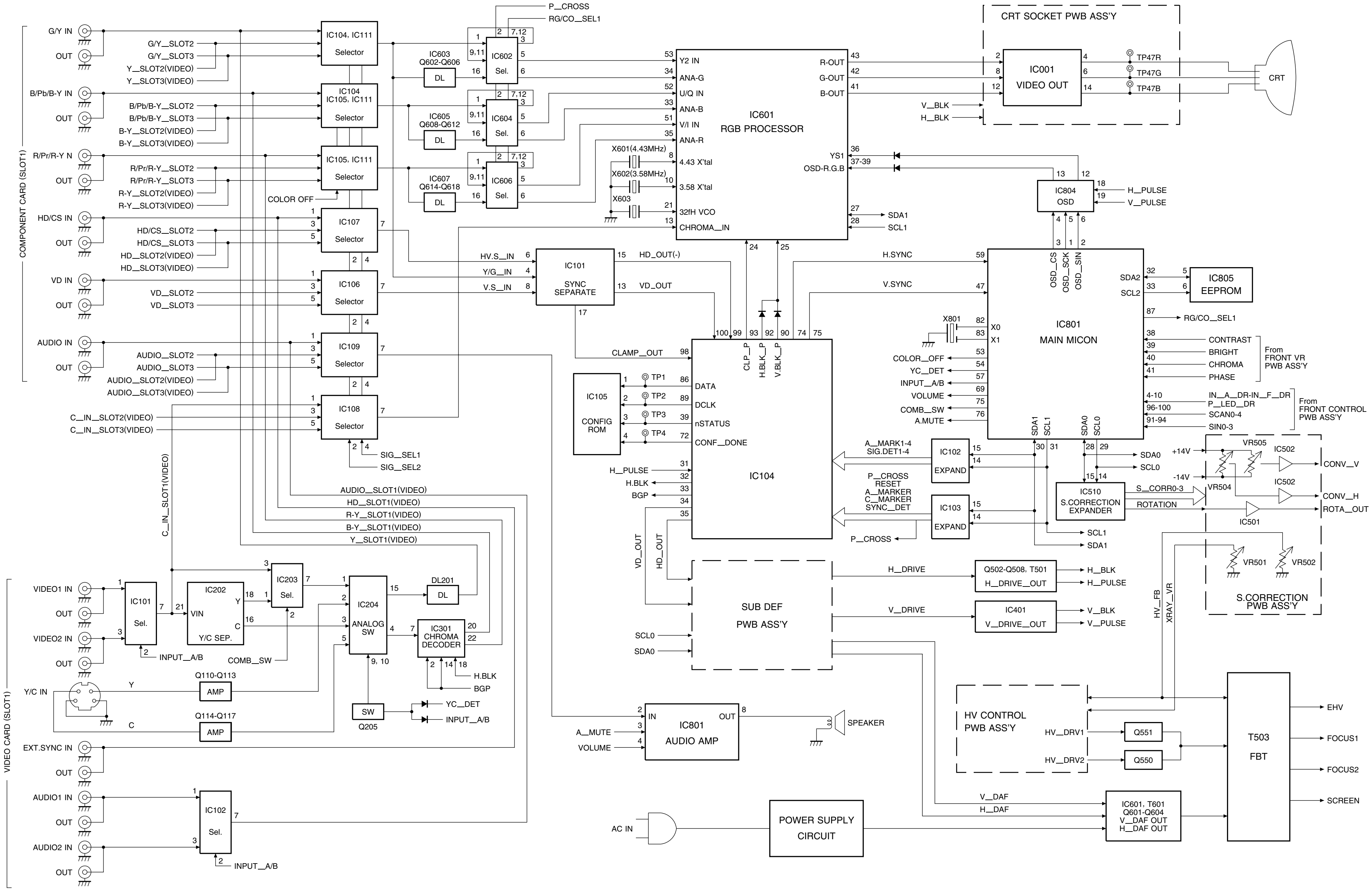
COMPO PWB CIRCUIT DIAGRAM (BT-YA702P) [OPTION]


COMPO PWB ASS'Y
FX-M016A
J001 CEMB021-002
G/Y
J002 CEMB021-002
R/R-Y
J003 CEMB021-002
B/B-Y
J004 CEMB021-002
HD/CS
J005 CEMB021-002
VD
J006 AUDIO
CEMN079-002
QRA14CF-75R0Y
C101 47/25
C102 47/25
C103 47/25
C104 10/50
C105 10/50
C114 C115 0.1 100/16
R114 100
R128 100
R142 100
VR101 *5
VR102 *5
VR103 *5
Q101 *1
Q102 *1
Q103 *1
Q104 *2
Q115 OPT
Q116 OPT
Q117 OPT
Q113 *1
Q114 *1
Q201 *1
D201 MTZJ12C-T2
12V REG
IC101
BA12T
C122 100/16
C121 0.1
C123 0.22
C120 47/25
CN001
QGB2514M1-50
1 Y
26 GND
2 B-Y
27 GND
3 R-Y
28 GND
4 NC
29 GND
5 INPUT_A/B
30 NC
6 HD
31 GND
7 VD
32 GND
8 NC
33 NC
9 NC
34 NC
10 C_IN(VIDEO)
35 GND
11 BGP(HD)
36 GND
12 NC
37 SLOT_SCA1
13 NC
38 SLOT_SCA2
14 NC
39 SLOT_SCA3
15 H_BLK
40 SLOT_SCA4
16 NC
41 SLOT_DET
17 NTSC/PAL
42 FSC
18 YC_DET
43 CL/BW
19 1080/1035
44 NC
20 SCL
45 VCC+14V
21 SDA
46 VCC+14V
22 NC
47 VCC+7V
23 NC
48 VCC+7V
24 AUDIO
49 GND
25 GND
50 GND
TO
MOTHER PWB
CN007-CN009

NOTE

OPT	:	NON MOUNT
*1	:	2SC3311A/QR/-T
*2	:	2SA1309A/QR/-T
*3	:	1SS133-T2
*4	:	CE42142-222Z
*5	:	QVP0053-501Z

■ BLOCK DIAGRAM



COMPONENT CARD (SLOT1)
G/Y IN
OUT
B/Pb/B-Y IN
R/Pr/R-Y N
HD/CS IN
VD IN
AUDIO IN
G/Y_SLOT2
G/Y_SLOT3
Y_SLOT2(VIDEO)
Y_SLOT3(VIDEO)
B/Pb/B-Y_SLOT2
B/Pb/B-Y_SLOT3
B-Y_SLOT2(VIDEO)
B-Y_SLOT3(VIDEO)
R/Pr/R-Y_SLOT2
R/Pr/R-Y_SLOT3
R-Y_SLOT2(VIDEO)
R-Y_SLOT3(VIDEO)
HD/CS_SLOT2
HD/CS_SLOT3
HD_SLOT2(VIDEO)
HD_SLOT3(VIDEO)
VD_SLOT2
VD_SLOT3
AUDIO_SLOT2
AUDIO_SLOT3
AUDIO_SLOT2(VIDEO)
AUDIO_SLOT3(VIDEO)
C_IN_SLOT2(VIDEO)
C_IN_SLOT3(VIDEO)
COLOR OFF
IC104, IC111 Selector
IC104 IC105, IC111 Selector
IC105, IC111 Selector
IC107 Selector
IC106 Selector
IC109 Selector
IC108 Selector
SIG_SEL1
SIG_SEL2
P_CROSS
RG/CO_SEL1
IC603 Q602-Q606 DL
IC605 Q608-Q612 DL
IC607 Q614-Q618 DL
IC602 Sel.
IC604 Sel.
IC606 Sel.
X601(4.43MHz)
X602(3.58MHz)
X603
IC601 RGB PROCESSOR
Y2 IN
ANA-G
U/Q IN
ANA-B
V/I IN
ANA-R
4.43 X'tal
3.58 X'tal
32fH VCO
CHROMA_IN
R-OUT
G-OUT
B-OUT
YS1
OSD-R.G.B
SDA1
SCL1
CRT SOCKET PWB ASS'Y
IC001 VIDEO OUT
TP47R
TP47G
TP47B
CRT
V_BLK
H_BLK
IC804 OSD
H_PULSE
V_PULSE
HV.S_IN
Y/G_IN
V.S_IN
IC101 SYNC SEPARATE
HD_OUT(-)
VD_OUT
H.SYNC
V.SYNC
CLAMP_OUT
IC801 MAIN MICON
OSD_CS
OSD_SCK
OSD_SIN
SDA2
SCL2
IC805 EEPROM
RG/CO_SEL1
X801
X0
X1
COLOR_OFF
YC_DET
INPUT_A/B
VOLUME
COMB_SW
A.MUTE
CONTRAST
BRIGHT
CHROMA
PHASE
From FRONT VR PWB ASS'Y
IN_A_DR-IN_F_DR
P_LED_DR
SCAN0-4
SIN0-3
From FRONT CONTROL PWB ASS'Y
SDA1
SCL1
SDA0
SCL0
IC105 CONFIG ROM
TP1
TP2
TP3
TP4
DATA
DCLK
nSTATUS
CONF_DONE
CLP_P
H.BLK_P
V.BLK_P
IC104
H_PULSE
H.BLK
BGP
A_MARK1-4
SIG.DET1-4
P_CROSS
RESET
A_MARKER
C_MARKER
SYNC_DET
IC102 EXPAND
IC103 EXPAND
P_CROSS
SCL1
SDA1
+14V
-14V
VR505
IC502
CONV_V
CONV_H
ROTA_OUT
VR504
IC501
IC510 S.CORRECTION EXPANDER
S_CORR0-3
ROTATION
VR501
VR502
S.CORRECTION PWB ASS'Y
AUDIO_SLOT1(VIDEO)
HD_SLOT1(VIDEO)
R-Y_SLOT1(VIDEO)
B-Y_SLOT1(VIDEO)
Y_SLOT1(VIDEO)
C_IN_SLOT1(VIDEO)
VD_OUT
HD_OUT
SUB DEF PWB ASS'Y
H_DRIVE
V_DRIVE
SCL0
SDA0
Q502-Q508, T501 H_DRIVE_OUT
H_BLK
H_PULSE
IC401 V_DRIVE_OUT
V_BLK
V_PULSE
HV_FB
XRAY_VR
VIDEO CARD (SLOT1)
VIDEO1 IN
VIDEO2 IN
Y/C IN
EXT.SYNC IN
AUDIO1 IN
AUDIO2 IN
IC101 Sel.
INPUT_A/B
IC202 VIN Y/C SEP.
IC203 Sel.
COMB_SW
Q110-Q113 AMP
Q114-Q117 AMP
Y
C
IC204 ANALOG SW
DL201 DL
IC301 CHROMA DECODER
H.BLK
BGP
SW Q205
YC_DET
INPUT_A/B
IC102 Sel.
INPUT_A/B
IC801 AUDIO AMP
IN
OUT
A_MUTE
VOLUME
SPEAKER
HV CONTROL PWB ASS'Y
HV_DRV1
HV_DRV2
Q551
Q550
T503 FBT
EHV
FOCUS1
FOCUS2
SCREEN
V_DAF
H_DAF
IC601, T601 Q601-Q604 V_DAF OUT H_DAF OUT
AC IN
POWER SUPPLY CIRCUIT

■ CIRCUIT BOARD DIAGRAMS

MAIN P.C.BOARD

⚠ 警告

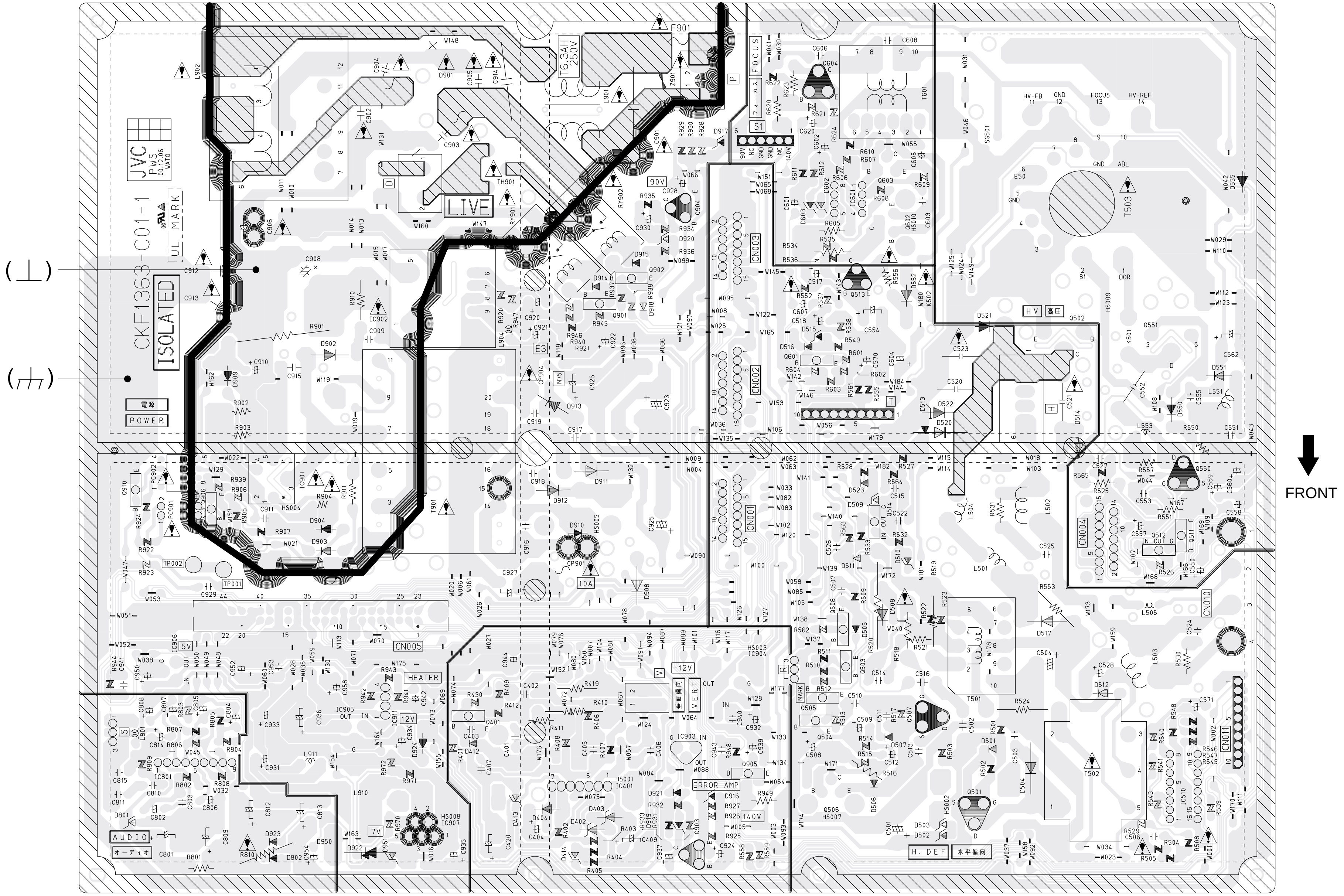
⚠ 印の部品は安全上重要な部品です。
交換するときは、安全及び性能維持のため必ず指定の部品をご使用ください。

▭ 内は充電部です。AC100Vが加わっておりますので点検、修理のときは感電しないよう充分ご注意ください。

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED WITH THE MARK ⚠ HAVE THE SPECIAL CHARACTERISTICS FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SAME TYPE.

CAUTION

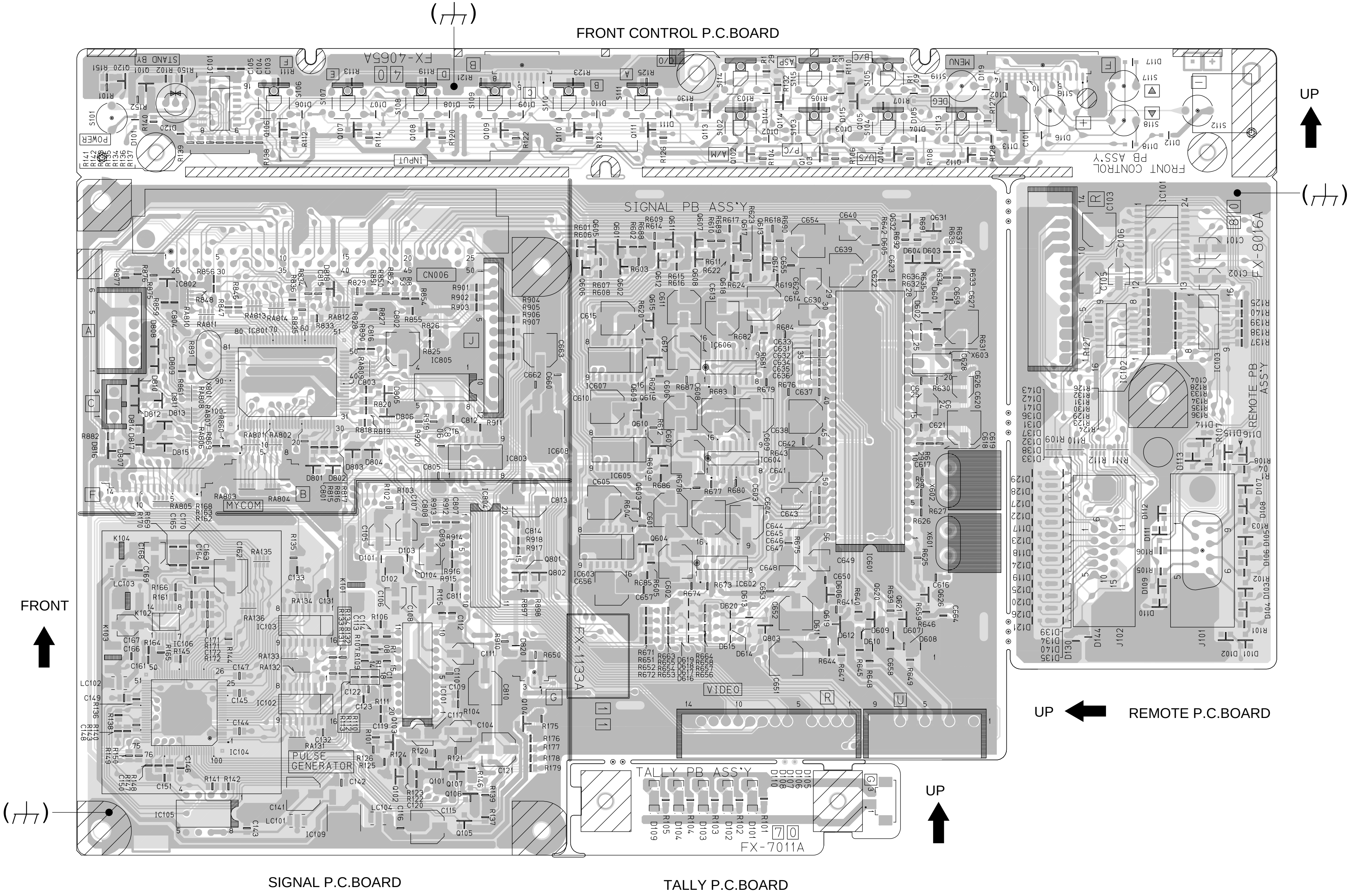
THE ▭ MARK INDICATES THE PRIMARY CIRCUIT TO DISTINGUISH THE PRIMARY FROM THE SECONDARY CIRCUIT. PAY ATTENTION NOT TO RECEIVE AN ELECTRIC SHOCK DURING REPAIR AND SERVICE OF THE PRODUCTS.



(⊥)
(⏚)
JVC
PWS
00.12.06
CKF1363-C01-1
ISOLATED
UL MARK
LIVE
F901
T6.3AH 250V
90V
電源
POWER
HEATER
ERROR AMP
HV 高圧
H.DEF 水平偏向
VERT 垂直偏向
AUDIO
オーディオ
FOCUS
フォーカス
5V
7V
12V
-12V
140V
10A
TP001
TP002
CN001
CN002
CN003
CN004
CN005
CN010
CN011
T501
T502
T503
T601
T901
IC901
IC902
IC903
FRONT

CBA-1 CBA-1

SIGNAL, FRONT CONTROL, TALLY & REMOTE P.C.BOARD

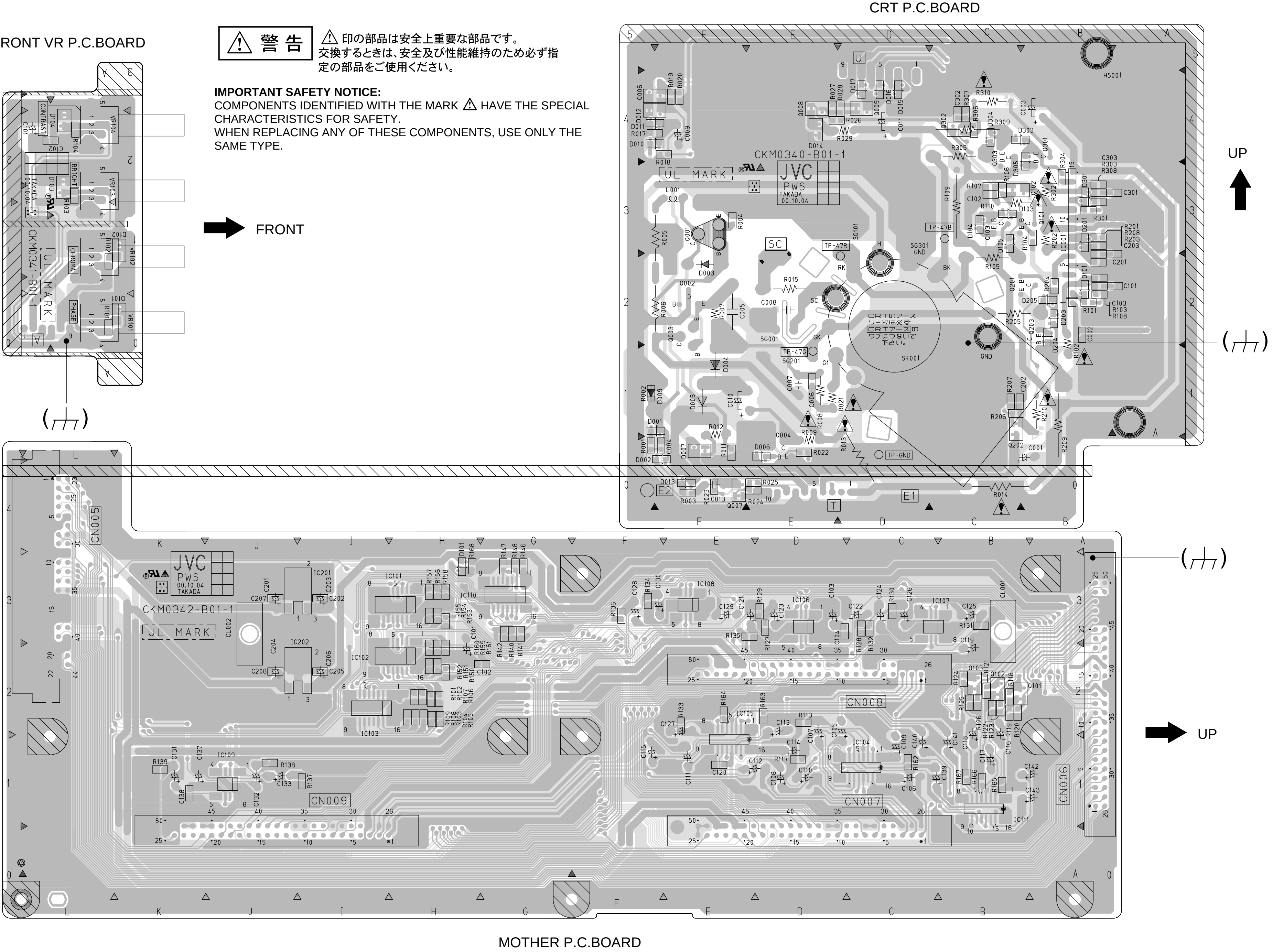

FRONT CONTROL P.C.BOARD
FRONT CONTROL PB ASS'Y
FX-4065A
UP
SIGNAL PB ASS'Y
FX-1133A
REMOTE PB ASS'Y
FX-8016A
FRONT
UP
REMOTE P.C.BOARD
TALLY PB ASS'Y
FX-7011A
UP
SIGNAL P.C.BOARD
TALLY P.C.BOARD

CRT, FRONT VR & MOTHER P.C.BOARD

⚠ 警 告

⚠ 印の部品は安全上重要な部品です。
交換するときは、安全及び性能維持のため必ず指
定の部品をご使用ください。

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED WITH THE MARK ⚠ HAVE THE SPECIAL CHARACTERISTICS FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SAME TYPE.


FRONT VR P.C.BOARD
CRT P.C.BOARD
MOTHER P.C.BOARD
FRONT
UP
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CONTRAST
BRIGHT
CHROMA
PHASE
VR101
VR102
VR103
VR104
CKM0341-B01-1
UL MARK
TAKADA 00.10.04
CKM0340-B01-1
JVC
PWS
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SC
TP-47R
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TP-47G
TP-GND
SG001
SG101
SG201
SG301 GND
SK001
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H5001
E1
E2
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JVC
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CN005
CN006
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CN009
CL001
CL002
IC101
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IC103
IC104
IC105
IC106
IC107
IC108
IC109
IC110
IC111
IC201
IC202

S. CORRECTION P.C.BOARD

VIDEO (BT-YA701P) & COMPO (BT-YA702P) P.C.BOARD (OPTION)

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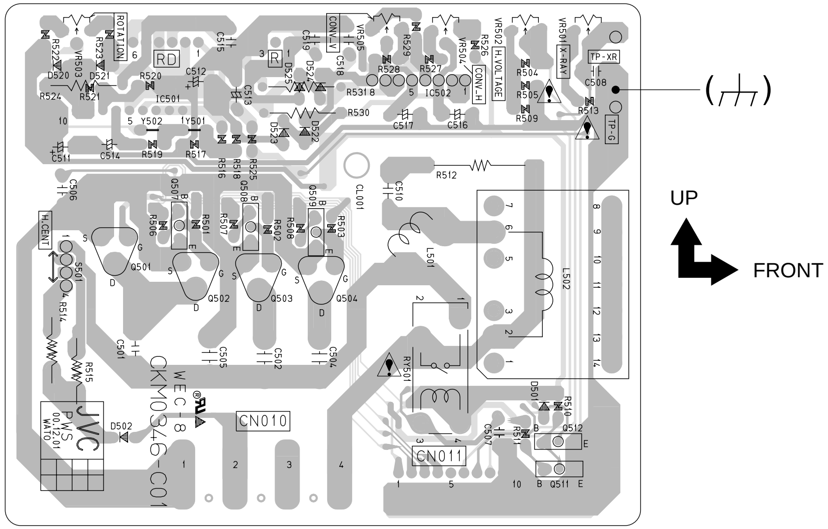
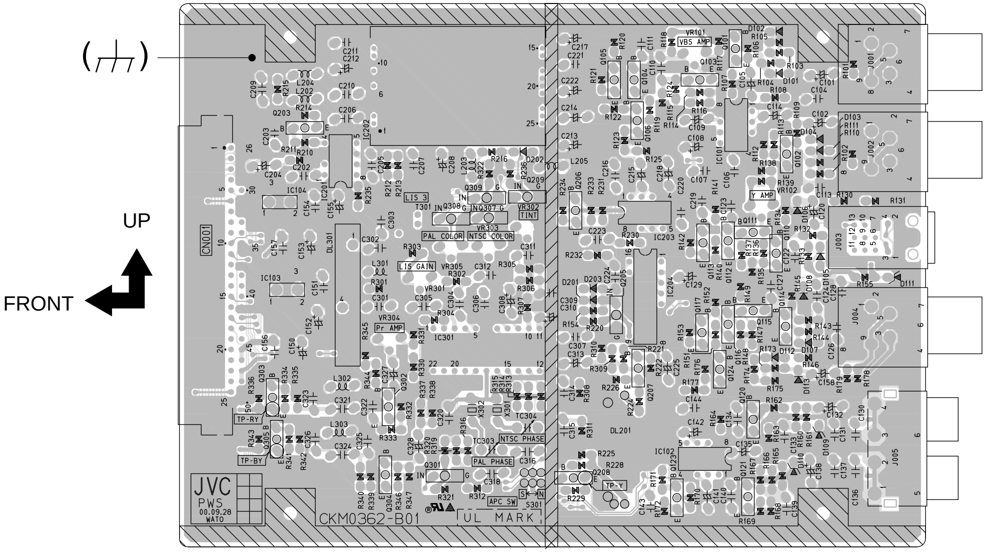
WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SAME TYPE.


ROTATION
RD
R
CONV.V
H.VOLTAGE
CONV.H
X-RAY
TP-XR
TP-G
H.CENT
IC501
IC502
Q501
Q502
Q503
Q504
L501
L502
RY501
CN010
CN011
JVC
PWS
WEC-8
CKM0346-C01

UP
FRONT

VIDEO P.C.BOARD (BT-YA701P)


CN001
VBS AMP
Y AMP
LIS 3
PAL COLOR
NTSC COLOR
LIS GAIN
Pr AMP
TINT
NTSC PHASE
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TP-RY
TP-BY
TP-Y
IC101
IC102
IC103
IC104
IC201
IC203
IC204
IC301
DL201
DL301
J001
J002
J003
J004
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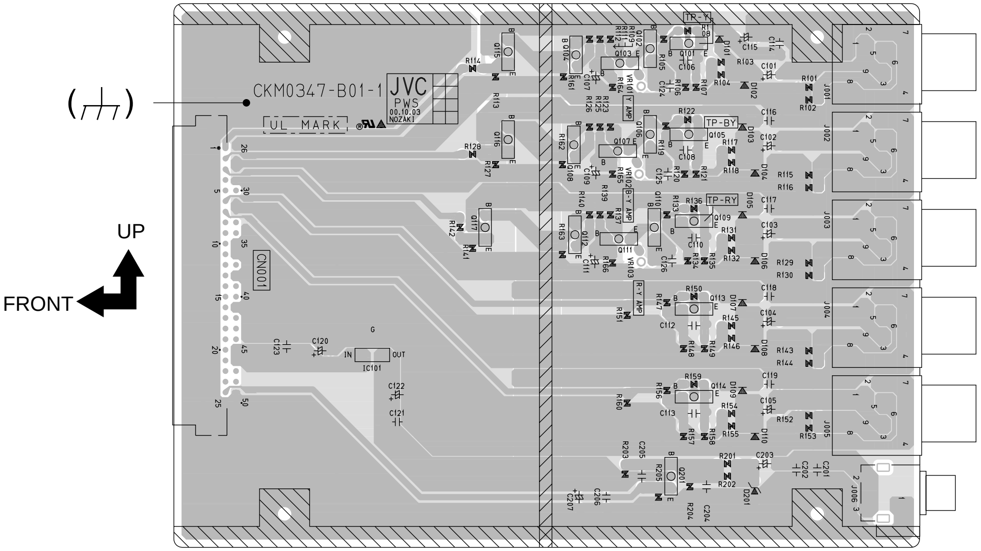
JVC
PWS
CKM0362-B01
UL MARK

UP
FRONT

COMPO P.C.BOARD (BT-YA702P)


TR-Y
TP-BY
TP-RY
B-Y AMP
R-Y AMP
Y AMP
CN001
IC101
J001
J002
J003
J004
J005
J006
CKM0347-B01-1
JVC
PWS
UL MARK

UP
FRONT

ORDER NO. BSD0111M025
D06

Service Manual

Multi-Format Monitor

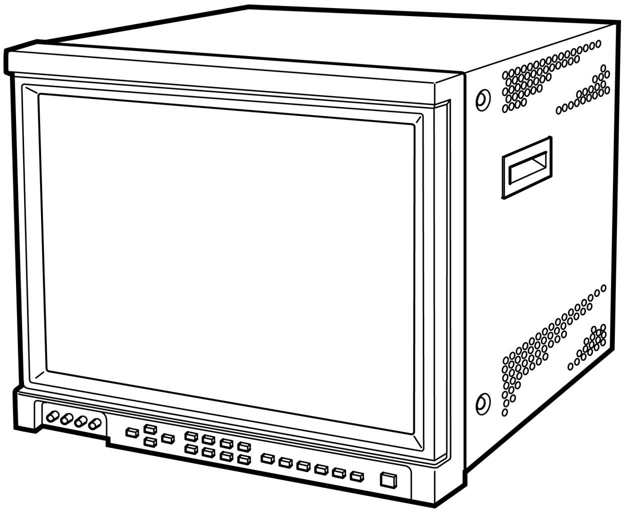
BT-H1700P

Video Input Card

BT-YA701P

Component/RGB Input Card

BT-YA702P



Panasonic

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⚠ **WARNING**

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

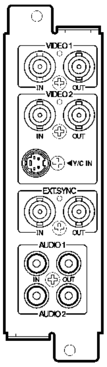
Specifications (BT-H1700P)

■ **Type**	: Multi-format monitor
■ **Picture Tube**	: 17" measured diagonally
■ **Effective Screen Size**	: Width : 330 mm Height : 250 mm Diagonal : 410 mm
■ **Scanning Frequency**	: H : 15 kHz/15 kHz – 45 kHz V : 50 Hz – 100 Hz
■ **Video Band**	: Component : 25 MHz (–3 dB) Video (Y/C) : 8 MHz (–3 dB)
■ **Horizontal Resolution**	: Video (Y/C) : 600 TV lines 1080/60i : 800 TV lines
■ **Input Terminals**	: Installing an optional input card in SLOT 1, 2, or 3 is required. INPUT A/INPUT B: Terminals on the input card in SLOT 1 INPUT C/INPUT D: Terminals on the input card in SLOT 2 INPUT E/INPUT F: Terminals on the input card in SLOT 3
■ **Compliant Video Signal**	: NTSC (3.58 MHz)/PAL (4.43 MHz) (using the BT-YA701P) 480i/576i/480p/1080i (60 Hz/24pSF)/720p (using the BT-YA702P) D1 serial digital (using the BT-YA703P) HD serial digital (using the BT-YA704P)
■ **Remote Inputs**	: • Point-of-contact connection, 1 line, D-sub connector (15-pin 3-line) • Serial connection, 1 line, D-sub connector (9-pin), compliant to RS-232C
■ **Audio Output**	: 1 W (monaural)
■ **Built-in Speaker**	: 8 cm round x 1
■ **Environmental Conditions**	: Operating temperature : 5°C – 35°C Operating humidity : 20% – 80% (non-condensing)
■ **Power Requirements**	: 120 V AC, 50 Hz/60 Hz
■ **Power Consumption (120 V)**	: 1.56 A (not including input card) Max. 1.85 A (including input card)
■ **Dimensions**	: Width : 395 mm Height : 334 mm Depth : 466.5 mm (not including wide mask and input card)
■ **Weight**	: 23.2 kg (not including wide mask and input card)
■ **Accessory**	: AC power cord

(BT-YA701P : OPTION)

■ BT-YA701P: VIDEO INPUT CARD

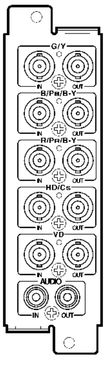
Type	: Video input card for multi-format monitor
Inputs/Outputs	: VIDEO 1/VIDEO 2: 2 lines, BNC connector x 4 (1 V (p-p), 75 Ω) Synchronised signal (EXT.SYNC): 1 line, BNC connector x 2 (1.0 V – 4.0 V (p-p), 75 Ω) * The input (IN) and output (OUT) terminals are bridge-connected. Auto termination. Y/C signal: 1 line, input only, mini-DIN 4-pin connector x 1 (Y/C input has a priority to a VIDEO 2 input) (Y: 1 V (p-p), 75 Ω/C: 0.286 V (NTSC (3.58 MHz))/0.3 V (PAL (4.43 MHz)), 75 Ω) Audio signal: 2 lines (monaural), RCA pin x 4 (0.5 V (rms), high impedance) * The input (IN) and output (OUT) terminals are bridge-connected.
Required slots	: 1
Power consumption	: 14 V DC, 0.25 A 7 V DC, 0.15 A
Weight	: 0.5 kg
Dimensions (W x H x D)	: 43 mm x 154.5 mm x 191.9 mm



(BT-YA702P : OPTION)

■ BT-YA702P: COMPONENT/RGB INPUT CARD

Type	: Component/RGB input card for multi-format monitor
Inputs/Outputs	: Component (Y, P_B/B-Y, P_R/R-Y) or RGB: 1 line, BNC connector x 6 (Y: 1 V (p-p), 75 Ω/P_B, B-Y, P_R, R-Y, R, G, B: 0.7 V (p-p), 75 Ω) Synchronised signal (HD/C_S, VD) : 1 line, BNC connector x 4 (1.0 V – 4.0 V (p-p), 75 Ω) * The input (IN) and output (OUT) terminals are bridge-connected. Auto termination. Audio signal: 1 line (monaural), RCA pin x 2 (0.5 V (rms), high impedance) * The input (IN) and output (OUT) terminals are bridge-connected.
Required slots	: 1
Power consumption	: 14 V DC, 0.02 A
Weight	: 0.5 kg
Dimensions (W x H x D)	: 43 mm x 154.5 mm x 191.9 mm
Dimensions (W x H x D)	: 43 mm x 154.5 mm x 191.9 mm



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SAFETY PRECAUTIONS

GENERAL GUIDELINES

1. When servicing, observe the original lead dress. If a short circuit is found, replace all parts which have been over-heated or damaged by the short circuit.
2. After servicing, see to it that all the protective devices such as insulation barriers, insulation papers shields are properly installed.
3. After servicing, make the following leakage current checks to prevent the customer from being exposed to shock hazards.

LEAKAGE CURRENT COLD CHECK

1. Unplug the AC cord and connect a jumper between the two prongs on the plug.
2. Measure the resistance value, with an ohm meter, between the jumpered AC plug and each exposed metallic cabinet part on the equipment such as screwheads, connectors, control shafts, etc. The resistance value must be more than 5MΩ.

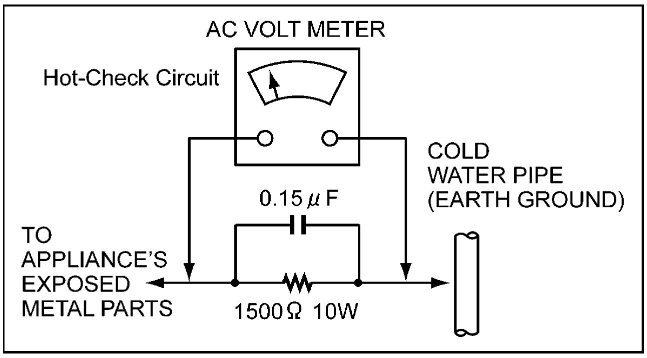


Figure1

LEAKAGE CURRENT HOT CHECK (See Figure 1)

1. Plug the AC cord directly into the AC outlet.
   Do not use an isolation transformer for this check.
2. Connect a 1.5KΩ, 10W resistor, in parallel with a 0.15μ F capacitor, between each exposed metallic part on the set an a good earth ground such as a water pipe, as shown in Figure1.
3. Use an AC voltmeter, with 1000 ohms/volt or more sensitivity, to measure the potential across the resistor.
4. Check each exposed metallic part, and measure the voltage at each point.
5. Reverse the AC plug in the AC outlet repeat each of the above measurements.
6. The potential at any point should not exceed 0.15 volts RMS. A leakage current tester (Simpson Model 229 equivalent) may be used to make the hot checks, leakage current must not exceed 0.1 milliamp. In case a measurement is outside of the limits specified, there is a possibility of a shock hazard, and the equipment should be repaired and rechecked before it is returned to the customer.

ELECTROSTATICALLY SENSITIVE (ES) DEVICES

Some semiconductor (solid state) devices can be damaged easily by static electricity. Such components commonly are called Electrostatically sensitive (ED) Devices. Examples of typical ES devices are integrated circuits and some field-effect transistors and semiconductor "chip" components. The following techniques should be used to help reduce the incidence of component damage caused by static electricity.

1. Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any electrostatic charge on your body by touching a known earth ground.
   Alternatively, obtain and wear a commercially available discharging wrist trap device, which should be removed for potential shock reasons prior to applying power to the unit under test.
2. After removing an electrical assembly equipped with ES devices, place the assembly on a conductive surface such as alminum foil, to prevent electrostatic charge buildup or exposure of the assembly.
3. Use only a grounded tip soldering iron to solder or unsolder ES devices.
4. Use only an anti-static solder removal device classified as "anti-static" can generate electrical charges sufficient to damage ES devices.
5. Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ES devices.
6. Do not remove a replacement ES device from its protective package until immediately before you are ready to install it.
   (most replacement ES devices are package with leads electrically shorted together by conductive foam, alminum foil or comparable conductive material).
7. Immediately before removing the protective material from the leads of a replacement ES device, touch the protective material to the chassis or circuit assembly into which the device will be installed.
   CAUTION : Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.
8. Minimize bodily motions when handling unpackaged replacement ES devices. (Otherwise hamless motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity sufficient to damage an ES device).

X-RADIATION

WARNING

1. The potential source of X-radiation in EVF sets is the High Voltage section and the picture tube.
2. When using a picture tube test jig for service, ensure that jig is capable of handling 10kV without causing X-Radiation.

Note : It is important to use an accurate periodically calibrated high voltage meter.

3. Measure the High Voltage. The meter (electric type) reading should indicate 2.5kV,±0.15kV. If the meter indication is out of tolerance, immediate service and correction is required to prevent the possibility of premature component failure. To prevent an X-Radiation possibility, it is essential to use the specified picture tube.

In order to prevent any fatal accidents caused by misoperation or mishandling the monitor, be fully aware of all the following precautions.

WARNINGS

To prevent fire or shock hazard, do not expose this monitor to rain or moisture. Dangerous high voltages are present inside the unit. Do not remove the back cover of the cabinet. When servicing the monitor, contrast qualified service personnel. Never try to service it yourself.

WARNING : THIS APPARATUS MUST BE EARTHED.

Improper operations, in particular alternation of high voltage or changing the type of tube may result in x-ray emission of considerable dose. A unit altered in such a way no longer meets the standards of certification, and must therefore no longer be operated.

This monitor is equipped with a 3-blade grounding-type plug to satisfy FCC rule. If you are unable to insert the plug into the outlet, contact your electrician.

FCC NOTICE (U.S.A. only)

CAUTION: Changes or modifications not approved by PANASONIC could void the user s authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

■ PRECAUTIONS

- Use only the power source specified on the unit. (120 V/ AC, 60 Hz)
- Keep flammable material, water, and metal objects away from the unit – especially the interior of the unit.
- This unit incorporates high voltage circuitry. For your own safety and that of your equipment, do not attempt to modify or disassemble this monitor. There are no user-serviceable parts inside.
- Video or audio signals cannot be input to this monitor without optional input cards.
- In these instructions, all explanations (except where noted) refer to the BT-H1700P with input cards installed.

SCREEN BURN

- It is not recommended to keep a certain still image displayed on screen for a long time as well as displaying extremely bright images on screen. This may cause a burning (sticking) phenomenon on the screen of cathode-ray tube. This problem does not occur as far as displaying normal video playback motion images.

■ HANDLING

- Avoid shocks or vibrations. These may damage the unit and cause it to malfunction.
- Do not block the ventilation slots.
- Do not expose this unit to high temperatures. Extended exposure to direct sunlight or a heater could deform the cabinet or cause the performance of internal components to deteriorate.
- Do not place the unit near appliances generating strong electric or magnetic fields. There can generate picture noise and instability.
- Keep the monitor clean by wiping the cabinet and CRT screen with a piece of soft cloth. Do not apply thinner or benzine. These chemicals can damage the finish and erase printed letters. When the unit is excessively dirty, use a diluted neutral cleanser, then wipe away the cleanser with a dry cloth.

DEGAUSS

- Do not use a magnet eraser to degauss the monitor s cathode ray tube from the outside. Doing so may distort its aperture grill and cause a malfunction.

SPECIFIC SERVICE INSTRUCTIONS

DISASSEMBLY PROCEDURE

■ CAUTION

Some parts are active even after the main power switch is set to OFF.
Be sure to unplug the power cord from the power outlet before proceeding with disassembly or assembly of the unit.

■ REMOVING THE SLOT PANEL, TOP COVER AND REAR PANEL

1. Unplug the power cord, remove the six screws ① and remove the Slot Panel.
2. Remove the fourteen screws ② and then the two screws ③.
3. Open up the lower part of the Top Cover slightly. Then pull the Top Cover toward the rear and lift to remove it.
4. Also remove the Rear Panel.

■ REMOVING THE BOTTOM COVER

- Remove the Slot Panel, Top Cover and Rear Panel before proceeding to the following.

1. Place the unit so that the side with the Slot Chassis comes at the bottom.
2. Remove the six screws ④ and pull the bottom cover toward the rear to remove it.

■ REMOVING THE SIGNAL PW BOARD, MOTHER PW BOARD AND REMOTE PW BOARD

- Remove the Slot Panel, Top Cover and Rear Panel before proceeding to the following.

1. Disconnect the wire clamps and connectors as required.
2. Remove the four screws ⑤ and unplug the Signal PWB from the connector on the Mother PWB.
3. Remove the two screws ⑥ and then remove the joint bracket.
4. Remove the two screws ⑦ and then remove the Slot Chassis by lifting it while pushing the claw Ⓒ on the Chassis Base.
5. Remove the nine screws ⑧ and remove the Mother PWB.
6. Remove the screw ⑨, the two screwnuts ⑩ and the two screwnuts ⑪, then remove the Remote PWB.

■ REMOVING THE CHASSIS BASE AND SPEAKER

- Remove the Slot Panel, Top Cover, Rear Panel and Slot Chassis before proceeding to the following.

1. Disconnect the wire clamps and connectors as required.
2. Remove the two screws ⑫ and pull the chassis base toward the front to remove it.
3. While disengaging the claw Ⓓ on the chassis base that is engaged with the rear of the speaker, lift the speaker to remove it (see Fig. 2).

■ REMOVING THE SIDE BRACKETS, CRT AND TALLY PW BOARD

- Remove the Slot Panel, Top Cover, Rear Panel, Bottom Cover, Slot Chassis and Chassis Base before proceeding to the following.

1. Remove the four screws ⑬ and remove the Side Brackets.
2. Also remove the CRT.
3. Remove the two screws ⑭ and remove the Tally PWB.

■ REMOVING THE FRONT CONTROL PW BOARD AND FRONT VR PW BOARD

1. Remove the five screws ⑮ and remove the Control Base.
2. Disconnect the connectors as required.
3. Remove the three screws ⑯ and remove the Front Control PWB.
4. While slightly lifting the two claws Ⓔ on the Control Base, remove the Front VR PWB.

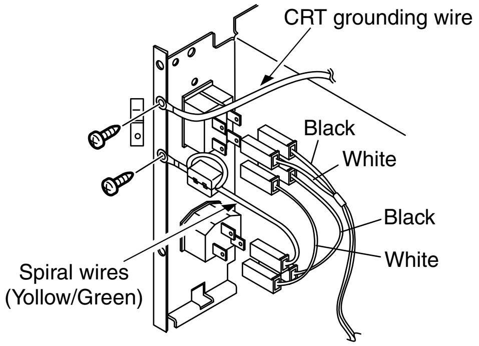
■ DIAGNOSING THE MAIN PW BOARD

1. Remove the Slot Panel, Top Cover and Rear Panel.
2. Place the unit so that the side with the Slot Chassis comes at the bottom, and remove the Bottom Cover.
3. Now the diagnosis of the Main PWB is possible.

*** The unit is unstable when it is placed on its side so please be careful that it does not topple over during work.**
*** Before turning the power on, ensure that the connectors including the CRT grounding are connected properly.**

CAUTION

Before turning the power on, ensure that the spiral wires (Yellow/Green) and the CRT grounding wires are connected properly.



View from the rear of the AC inlet

■ NOTE CONCERNING WIRE CLAMPING

- Be sure to reconnect the wire clamps that have been disconnected during the above work.

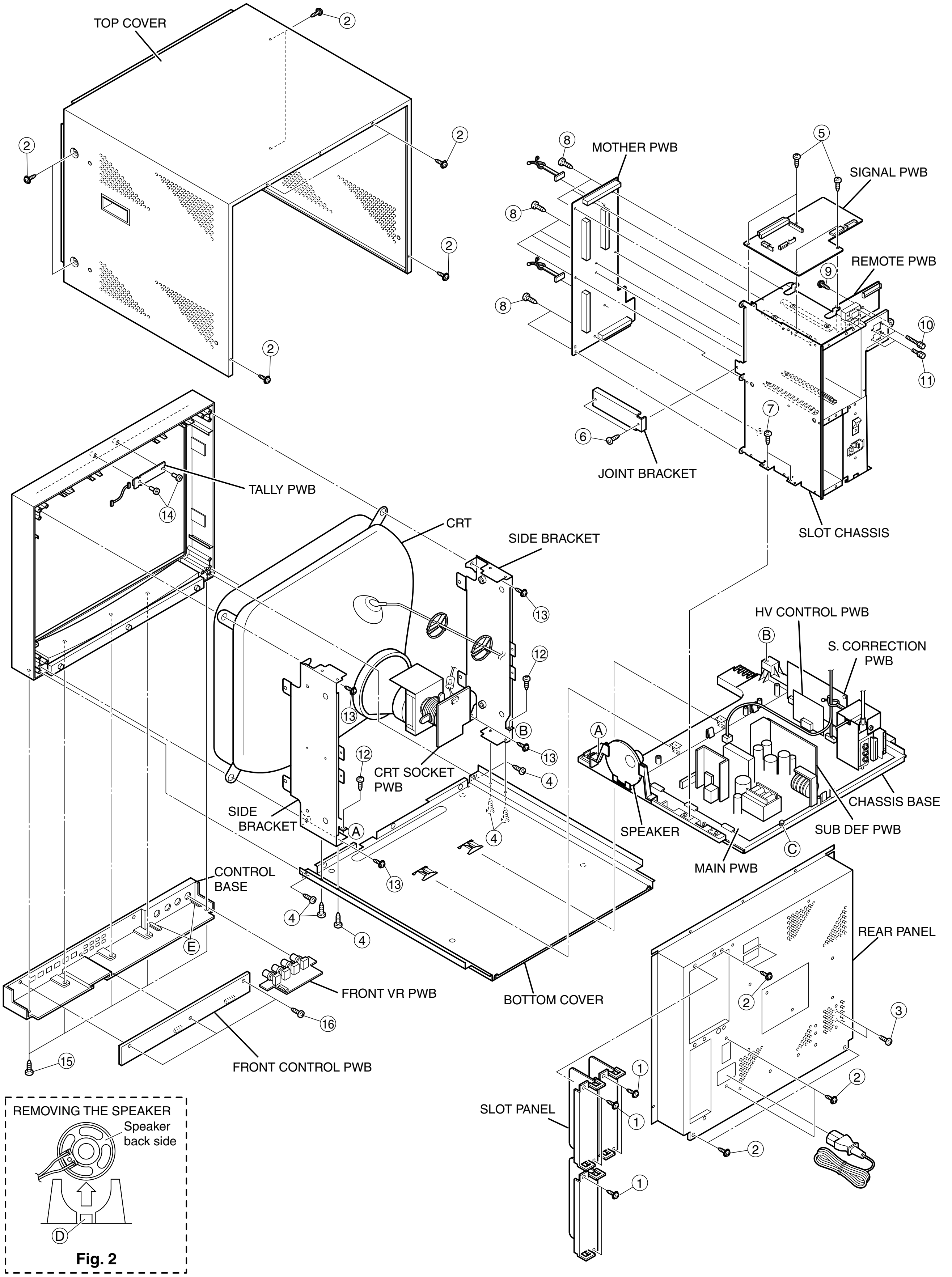

TOP COVER
②
MOTHER PWB
⑧
⑤
SIGNAL PWB
REMOTE PWB
⑨
⑩
⑪
⑥
JOINT BRACKET
⑦
SLOT CHASSIS
TALLY PWB
⑭
CRT
SIDE BRACKET
⑬
⑫
HV CONTROL PWB
S. CORRECTION PWB
Ⓑ
Ⓐ
CRT SOCKET PWB
④
CHASSIS BASE
SIDE BRACKET
SPEAKER
SUB DEF PWB
Ⓒ
MAIN PWB
CONTROL BASE
Ⓔ
REAR PANEL
FRONT VR PWB
BOTTOM COVER
③
⑯
⑮
FRONT CONTROL PWB
①
SLOT PANEL
REMOVING THE SPEAKER
Speaker back side
Ⓓ

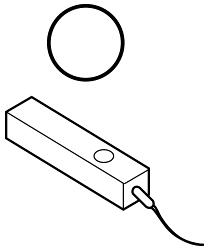
Fig. 2

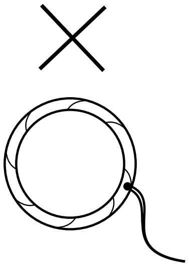
Fig. 1

DEMAGNETIZATION PROCEDURE

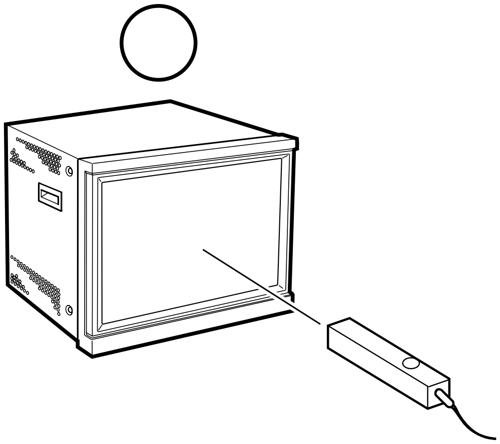
■ CAUTION

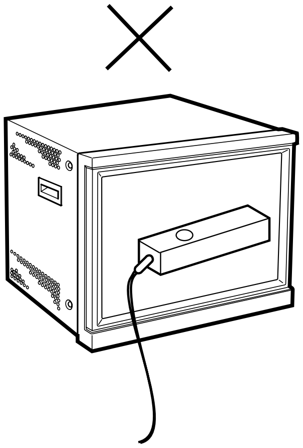
1. Use a rod-type demagnetization coil.
   * Never use a ring-shaped demagnetization coil.



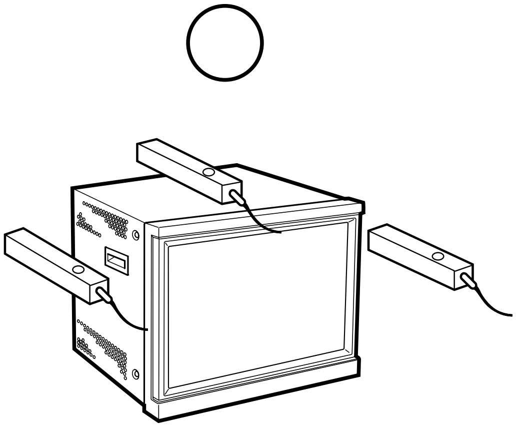


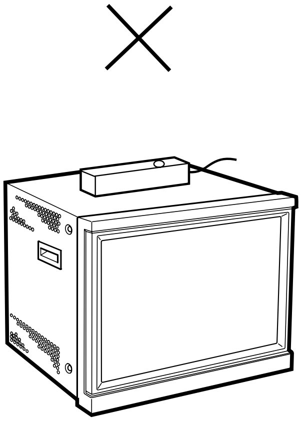
2. Keep the demagnetization coil at a distance of more than 1.5 cm from the CRT screen and the main unit during use.
3. When demagnetizing the CRT screen, hold the demagnetization coil perpendicularly to the CRT screen.





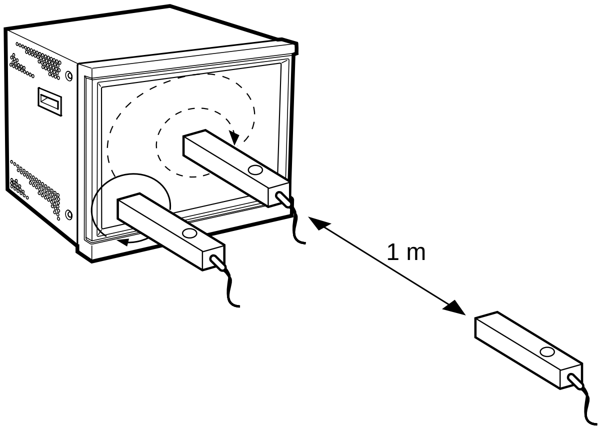
4. When demagnetizing the outer cabinet of the unit, use the demagnetization coil in the orientation as shown below.





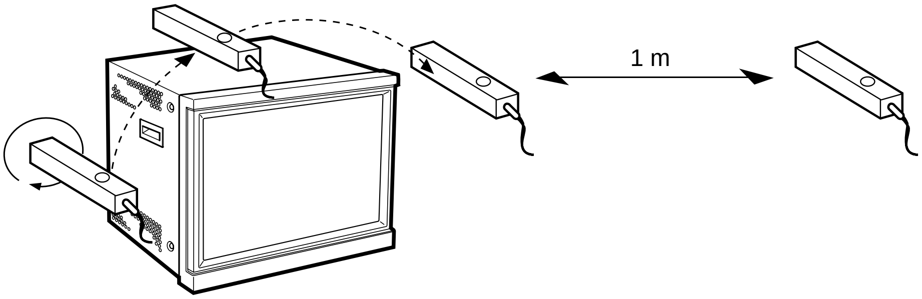
■ DEMAGNETIZING THE CRT SCREEN

1. While holding the power button of the demagnetization coil, move it to approach the CRT screen area that has color irregularities. (Keep the demagnetization coil at a distance of more than 1.5 cm from the screen.)
2. From the area with the color irregularities, move the demagnetization coil as if drawing a spiral toward the center of the CRT screen.
3. Move the demagnetization coil slowly away from the center of the CRT screen.
4. When the demagnetization coil comes to about 1 meter from the CRT screen, release the demagnetization coil power button.
5. If the color irregularities are still observed, repeat the above steps once more.



■ DEMAGNETIZING THE OUTER CABINET OF THE UNIT

1. While holding the power button of the demagnetization coil, move it to approach the outer cabinet of the unit. (Keep the demagnetization coil at a distance of more than 1.5 cm from the cabinet.)
2. Keep the demagnetization coil in the same orientation, and move it around the cabinet as if drawing a circle around the side and top panels of the unit.
3. Move the demagnetization coil slowly away from the outer cabinet of the unit.
4. When the demagnetization coil comes to about 1 meter from the unit, release the power button of the demagnetization coil.



REPLACEMENT OF CHIP COMPONENT

■ CAUTIONS

1. Avoid heating for more than 3 seconds.
2. Do not rub the electrodes and the resist parts of the pattern.
3. When removing a chip part, melt the solder adequately.
4. Do not reuse a chip part after removing it.

■ SOLDERING IRON

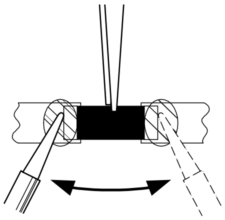
1. Use a high insulation soldering iron with a thin pointed end of it.
2. A 30w soldering iron is recommended for easily removing parts.

■ REPLACEMENT STEPS

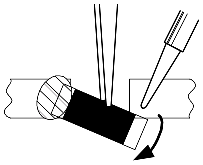
1. How to remove Chip parts

◆ Resistors, capacitors, etc.

(1) As shown in the figure, push the part with tweezers and alternately melt the solder at each end.

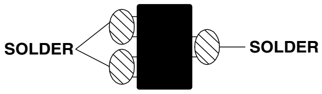


(2) Shift with tweezers and remove the chip part.

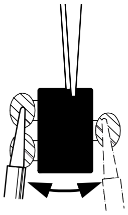


◆ Transistors, diodes, variable resistors, etc.

(1) Apply extra solder to each lead.



(2) As shown in the figure, push the part with tweezers and alternately melt the solder at each lead. Shift and remove the chip part.

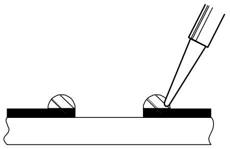


Note : After removing the part, remove remaining solder from the pattern.

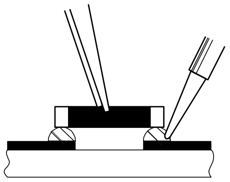
2. How to install Chip parts

◆ Resistors, capacitors, etc.

(1) Apply solder to the pattern as indicated in the figure.



(2) Grasp the chip part with tweezers and place it on the solder. Then heat and melt the solder at both ends of the chip part.

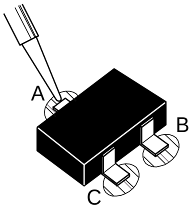


◆ Transistors, diodes, variable resistors, etc.

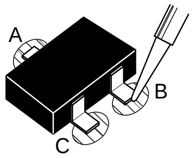
(1) Apply solder to the pattern as indicated in the figure.

(2) Grasp the chip part with tweezers and place it on the solder.

(3) First solder lead **A** as indicated in the figure.



(4) Then solder leads **B** and **C**.

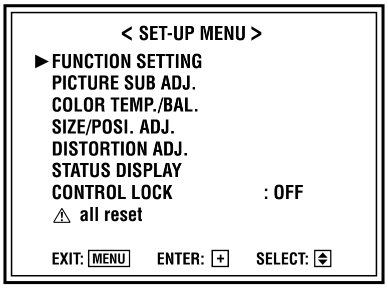


REPLACEMENT OF THE MEMORY IC

The unit incorporates a nonvolatile Memory IC, which stores data on the video and deflection systems, etc. When it is replaced with an IC without the data stored in it, the set may malfunction or the video may become abnormal when the unit is turned on. When replacing the Memory IC, be sure to use an IC in which the data (initial values) has already been written. (Ref No. : 24C16V1700CG)

■ REPLACING THE MEMORY IC

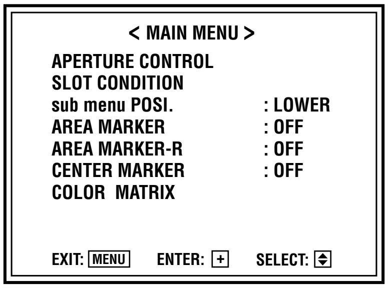
1. Turn the unit off and unplug the power cord from the power outlet.
2. Replace the Memory IC with a new Memory IC storing the initial value data.
3. Plug the power cord into the power outlet and turn the unit on.
4. Check the SET-UP MENU and set its items as required.
    1) While holding down the ▼ key, press the **VOL -** (◄) key.
    2) The SET-UP MENU appears (Fig. 1).
    3) Check the items in the SET-UP MENU by comparing them with the data in the table on page 10.
    If any item is set differently, set it as required.



< SET-UP MENU >
►FUNCTION SETTING
PICTURE SUB ADJ.
COLOR TEMP./BAL.
SIZE/POSI. ADJ.
DISTORTION ADJ.
STATUS DISPLAY
CONTROL LOCK : OFF
⚠ all reset
EXIT: MENU ENTER: + SELECT: ⇕

Fig. 1

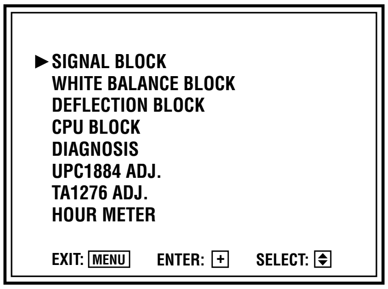
5. Check the other menus and set their items as required.
Press the **MENU** key to display the MAIN MENU (Fig. 2). Check the items in the MAIN MENU by comparing them with the data in the table on page 11. If any item is set differently, set it as required.



< MAIN MENU >
APERTURE CONTROL
SLOT CONDITION
sub menu POSI. : LOWER
AREA MARKER : OFF
AREA MARKER-R : OFF
CENTER MARKER : OFF
COLOR MATRIX
EXIT: MENU ENTER: + SELECT: ⇕

Fig. 2

6. Adjust the items that can be adjusted on the front panel. (Some items cannot be adjusted unless the required signal is input.)
7. Check that the initial values of the items in the service menu are correct (Fig. 3).
For the setting method, see the corresponding pages for "**Adjustments**" in this manual.



►SIGNAL BLOCK
WHITE BALANCE BLOCK
DEFLECTION BLOCK
CPU BLOCK
DIAGNOSIS
UPC1884 ADJ.
TA1276 ADJ.
HOUR METER
EXIT: MENU ENTER: + SELECT: ⇕

Fig. 3

FACTORY SETTINGS

■ INITIAL VALUES OF THE SET-UP MENU ITEMS

Item	Data/Variable range	Initial setting value	Remarks
FUNCTION SETTING			
COLOR SYSTEM	AUTO/NTSC/PAL	AUTO	Apply the NTSC/PAL color bar signal
RUSH DELAY TIME	STD. /SLOW	STD.	
PICTURE SUB ADJ.			
CONTRAST	-20 — +20	00	
BRIGHT	-20 — +20	00	
CHROMA	-20 — +20	00	
PHASE	-20 — +20	00	
COMPO. LEVEL	SMPTE/B00/B75	SMPTE	Apply the component signal
NTSC SETUP	00 / 7.5	7.5	
COLOR TEMP. / BAL.			
COLOR TEMP.	LOW / HIGH	LOW	
BLUE DRIVE	MIN — MAX (127 steps)	000	
RED DRIVE	MIN — MAX (127 steps)	000	
GREEN CUTOFF	MIN — MAX (205 steps)	000	
BLUE CUTOFF	MIN — MAX (205 steps)	MIN	
RED CUTOFF	MIN — MAX (205 steps)	000	
SIZE / POSI. ADJ.			
H.SIZE	-20 — +20	00	
H.POSITION	-20 — +20	00	
V.SIZE	-20 — +20	00	
V.POSITION	-20 — +20	00	
DISTORTION ADJ.			
PINCUSHION	-20 — +20	00	
PIN.BALANCE	-20 — +20	00	
PARALLELOGRAM	-20 — +20	00	
TRAPEZOID	-20 — +20	00	
STATUS DISPLAY			
STATUS DISPLAY	ON / OFF	ON	
1080/1035	1035/1080	1080	Apply the component signal
CONTROL LOCK	ON / OFF	OFF	

■ INITIAL VALUES OF MAIN MENU

Item	Data/Variable range	Initial setting value
APERTURE CONTROL		
LEVEL	00 — 10	00
CONTROL FREQ.	→ HIGH → LOW → OFF ⮌	HIGH
SLOT CONDITION	Type of boards installed in the rear panel slots.	
INPUT A — F	SLOT1 : INPUT A, B SLOT2 : INPUT C, D SLOT3 : INPUT E, F	
sub menu POSI.	LOWER / UPPER	LOWER
AREA MARKER	→ 16/9 → 4/3 → 13/9 → 14/9 OFF ← MODE2 ← MODE1 ←	OFF
AREA MARKER-R	→ 16/9 → 4/3 → 13/9 → 14/9 OFF ← MODE2 ← MODE1 ←	OFF
CENTER MARKER	ON / OFF	OFF
COLOR MATRIX	SELECT : MANUAL / ITU601 ↑ [Example when MANUAL is set]	MANUAL
	R-Y PHASE : 90/92/94/112	90
	R/B GAIN : 0.56/0.68/0.79/0.86	0.86
	G-Y PHASE : 236/240/244/253	244
	G/B GAIN : 0.30/0.34/0.40/0.45	0.30

■ INITIAL VALUES OF FRONT PANEL CONTROL

Item	Data/Variable range	Initial setting value
POWER	ON/OFF	OFF
INPUT SELECT	INPUT A — F	INPUT A
COLOR OFF AREA MARKER PULSE CROSS ASPECT UNDER SCAN SCREENS CHECK DEGAUSS	ON/OFF	OFF
VOLUME	00 — 50	10
CONTRAST BRIGHT CHROMA PHASE	POTENTIOMETER	Center click position

SERVICING GUIDE

SELF DIAGNOSIS

The unit incorporates a self-diagnosis function and is capable of indicating the absence of raster by blinking on the front panel LEDs and the on-screen display.

1. DISPLAYING THE SELF DIAGNOSIS INDICATIONS

- LED indication: When raster is absent, the six LEDs of INPUT SELECT A to F on the front panel blink to indicate this condition.
- On-screen display: The self diagnosis results can be displayed when the unit is on.

2. LED INDICATION

- **Operation during an LED indication:**
  The main microcomputer detects any abnormalities in communication on the I2C and causes the LEDs to blink.
  At the same time, the unit is turned off to protect it but the LEDs keep on blinking.
  At this time, the main microcomputer does not accept commands except for the POWER switch on the front panel.

- **How to cancel the LED blinking:**
  Press the POWER switch on the front panel to turn the unit ON again.

- **Types of LED indications**

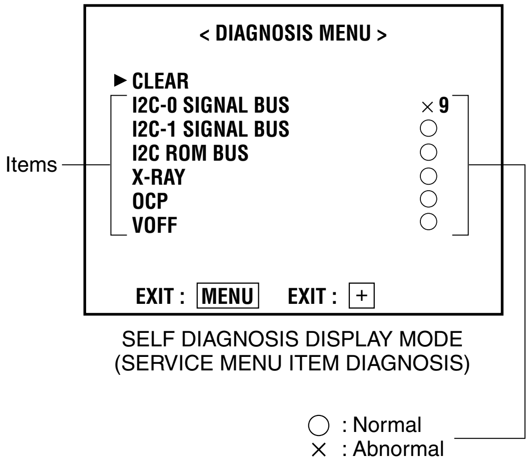
LED INDICATION TYPE	ON-SCREEN DISPLAY	DIAGNOSIS RESULT	MALFUNCTIONING CIRCUIT
INPUT A blinking at 0.5-second intervals	I2C-0 DEFLECTION BUS	Communication error in the signal buses (SCL0, SDA0) of I2C	• SIGNAL PWB ASS'Y IC801 • MAIN PWB ASS'Y IC510 • MOTHER PWB ASS'Y IC103 • REMOTE PWB ASS'Y IC102, IC103 • SUB DEF PWB ASS'Y IC001
INPUT B blinking at 0.5-second intervals	I2C-1 SIGNAL BUS	Communication error in the signal buses (SCL1, SDA1) of I2C	• SIGNAL PWB ASS'Y IC102, IC103, IC601, IC801 • FRONT CONTROL PWB ASS'Y IC101
INPUT C blinking at 0.5-second intervals	I2C ROM BUS	Communication error in the ROM buses (SCL2, SDA2) of I2C	• SIGNAL PWB ASS'Y IC801, IC805
INPUT D blinking at 0.5-second intervals	X-RAY	X-rays detected	• SIGNAL PWB ASS'Y IC801 • HV CONTROL PWB ASS'Y IC503
INPUT E blinking at 0.5-second intervals	OCP	Overcurrent detected	• SIGNAL PWB ASS'Y IC801 • MAIN PWB ASS'Y
INPUT F blinking at 0.5-second intervals	VOFF	Neck-break prevention detected	• SIGNAL PWB ASS'Y IC801 • SUB DEF PWB ASS'Y IC005

3. ON-SCREEN DISPLAY (SELF DIAGNOSIS DISPLAY MODE)

- **How to enter the self diagnosis display mode:**
  Press a key on the front panel to display the service menu and select “**DIAGNOSIS**”.
  (See “Basic Operations of Service Menu” on page 18.)

- **How to clear the trouble history in the self diagnosis mode:**
  In the DIAGNOSIS MENU as shown on the left, select “**CLEAR**”.
  A new screen appears. Press the **VOL +** (▶) on the front panel to select “**YES**”.
  This clears the trouble history in the self diagnosis mode and the symbols displayed to the right of all of the items become “ ○ ”.

- **Trouble history**
  The trouble history of each item is counted up to 9. The figure is held in the memory until the trouble history is cleared.
  As a result, the displayed trouble history count remains 9 even if it actually exceeds 9.


< DIAGNOSIS MENU >
▶ CLEAR
I2C-0 SIGNAL BUS ×9
I2C-1 SIGNAL BUS ○
I2C ROM BUS ○
X-RAY ○
OCP ○
VOFF ○
EXIT : MENU
EXIT : +
Items
○ : Normal
× : Abnormal

SELF DIAGNOSIS DISPLAY MODE
(SERVICE MENU ITEM DIAGNOSIS)

SERVICE ADJUSTMENTS

BEFORE ADJUSTMENTS

1. Ensure that the 120 V AC power is supplied correctly.
2. Warm run the unit and measuring tools sufficiently (at least 30 minutes).
3. Perform all adjustments based on the initial values. There is no problem if the result of an adjustment performed by observing the screen is different from the initial value.
4. Never attempt to turn on potentiometers or other controls that are not explicitly mentioned in the adjustment procedures.

NOTE: When using the BT-YA701P (NTSC/PAL Video Input Card) in an adjustment, be sure to check the output waveforms from the video input card in advance.

SETTINGS REQUIRED FOR ADJUSTMENTS

For the functions other than those that should be set before each adjustment, reset them to the initial values according to the table on page 10 before proceeding to the adjustment.
Correct adjustments will not be possible unless the values of the functions are reset to the initial values.

SETTING ITEMS

Begin adjustments with the primary items and then proceed to the secondary items, (1) to (3).

PRIMARY ADJUSTMENT ITEMS

- Screen voltage adjustment and focusing coarse adjustment
- High-voltage coarse adjustment
- X-ray protector adjustment/check
- High-voltage adjustment
- Focusing adjustment
- Convergence adjustment
- Front rotation adjustment

SECONDARY ADJUSTMENT ITEMS (1)

- Signal contrast adjustments
  (Overscan, underscan, aspect mode)
- Signal chroma/phase adjustments

SECONDARY ADJUSTMENT ITEMS (2)

- Vertical linearity (reference value) adjustments
  (60 Hz, 50 Hz)
- Signal deflection system adjustments
  (Overscan, underscan, aspect mode)

SECONDARY ADJUSTMENT ITEMS (3)

- Low-light white balance adjustment
- Signal white balance adjustments
- Signal brightness adjustments
  (Overscan, underscan, aspect mode)

MEASURING INSTRUMENTS AND TOOLS

1. DC voltmeter (or digital voltmeter)
2. Oscilloscope
3. Color analyzer (color temperature meter)
4. High-voltage voltmeter
5. Signal generator (Should be compatible with the following signal specifications.)
6. Scale (made of non-metallic material)
7. BT-YA701P (NTSC/PAL Video Input Card)
8. BT-YA702P (Component/RGB Input Card)

Fromats of Signal Used in Adjustments	Types of Signals Used in Adjustments
● DTV format component signals (480/60i, 480/60p, 576/50i, 720/60p, 1080/24pSF, 1080/60i) ● NTSC signals (Composite, Y/C) ● PAL signals (Composite, Y/C)	● Color bar signal ● Size adjustment signal ● All white signal ● All black signal ● Mono-scope signal ● Gray scale signal ● 10-step gray scale signal ● Crosshatch signal ● Crosshatch signal with circle pattern

■ FOCUSING AND SCREEN ADJUSTMENT HOLES

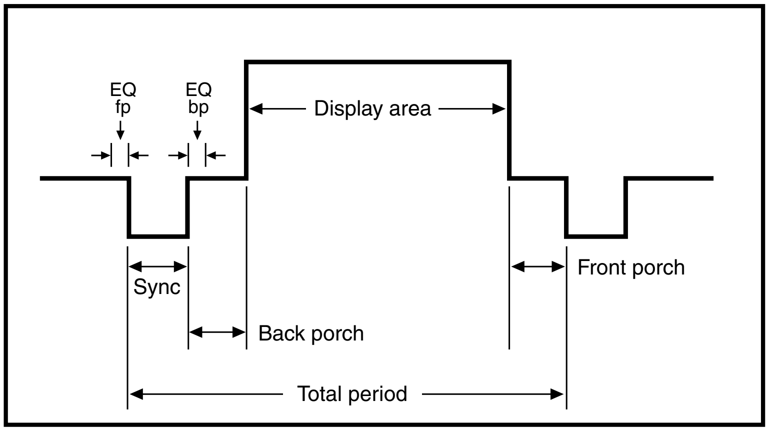
The rear panel has the adjustment holes for use in adjusting the focusing and screen.

[CAUTION]

Be sure to use screwdrivers made of non-metallic materials for the following adjustments. If a metallic screwdriver is used, short-circuiting may damage parts of the unit, including the high-voltage parts.

TIMING CHART OF SIGNALS REQUIRED FOR ADJUSTMENTS

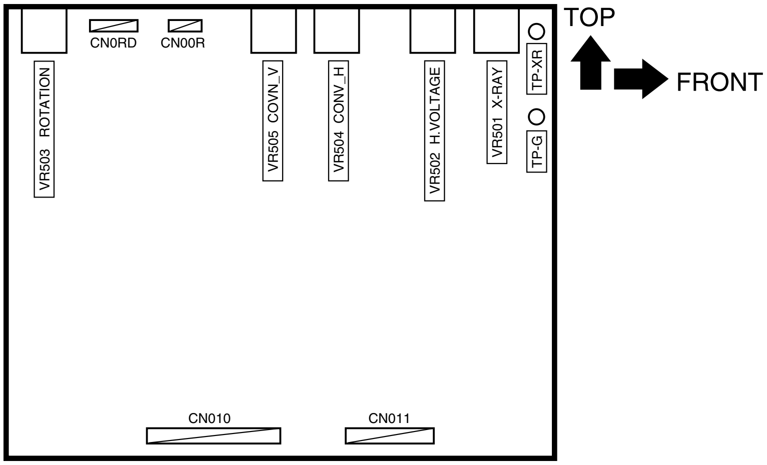
Generate the signals required for adjustments with a programmable signal generator by referring to the following figure.



Signal	NTSC (14.3)	PAL	480/60i	576/50i	480/60p	720/60p	1080/24pSF	1080/60i
Resolution (Horizontal)	768	624	720	720	720	1280	1920	1920
Resolution (Vertical)	243	287	244	287	483	720	540	540
Horizontal frequency (kHz)	15.73	15.625	15.73	15.625	31.469	44.955	27	33.75
Vertical frequency (Hz)	29.97i	25i	30i	25i	60p	60p	24pSF (48i)	30i
CS & V		RGB	RGB	RGB	RGB	RGB	RGB	RGB
CS	-1	-1	-1	-1	-1	-1	-1	-1
HS	-1	-1	-1	-1	-1	-1	-1	-1
VS	-1	-1	-1	-1	-1	-1	-1	-1
Dot clock(MHz)	14.318	12	13.5	13.5	27	74.25	74.25	74.25
H period	910	768	858	864	858	1650	2750	2200
H sync	68	56	63	63	63	40	44/44	44/44
H back p.	58	70	59	68	59	260	144/188	144/188
H disp	768	624	720	720	720	1280	1920	1920
V period	263	312	263	312	525	750	562	562
V sync	3	3	3	3	6	5	5	5
V back p.	14	19	13	19	30	20	15	15
V disp	243	287	243	287	483	720	540	540
Equivalent pulse (fp/bp)	3H/3H	3H/3H	3H/3H	3H/3H	0H/0H	0H/0H	0H/0H	0H/0H

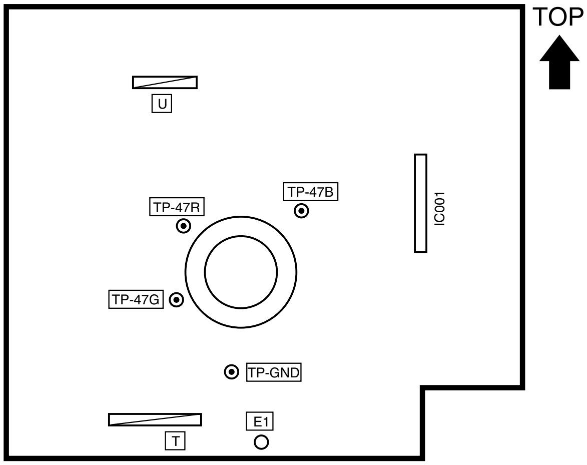
ADJUSMENT LOCATIONS

S. CORRECTION PWB (SOLDER SIDE)



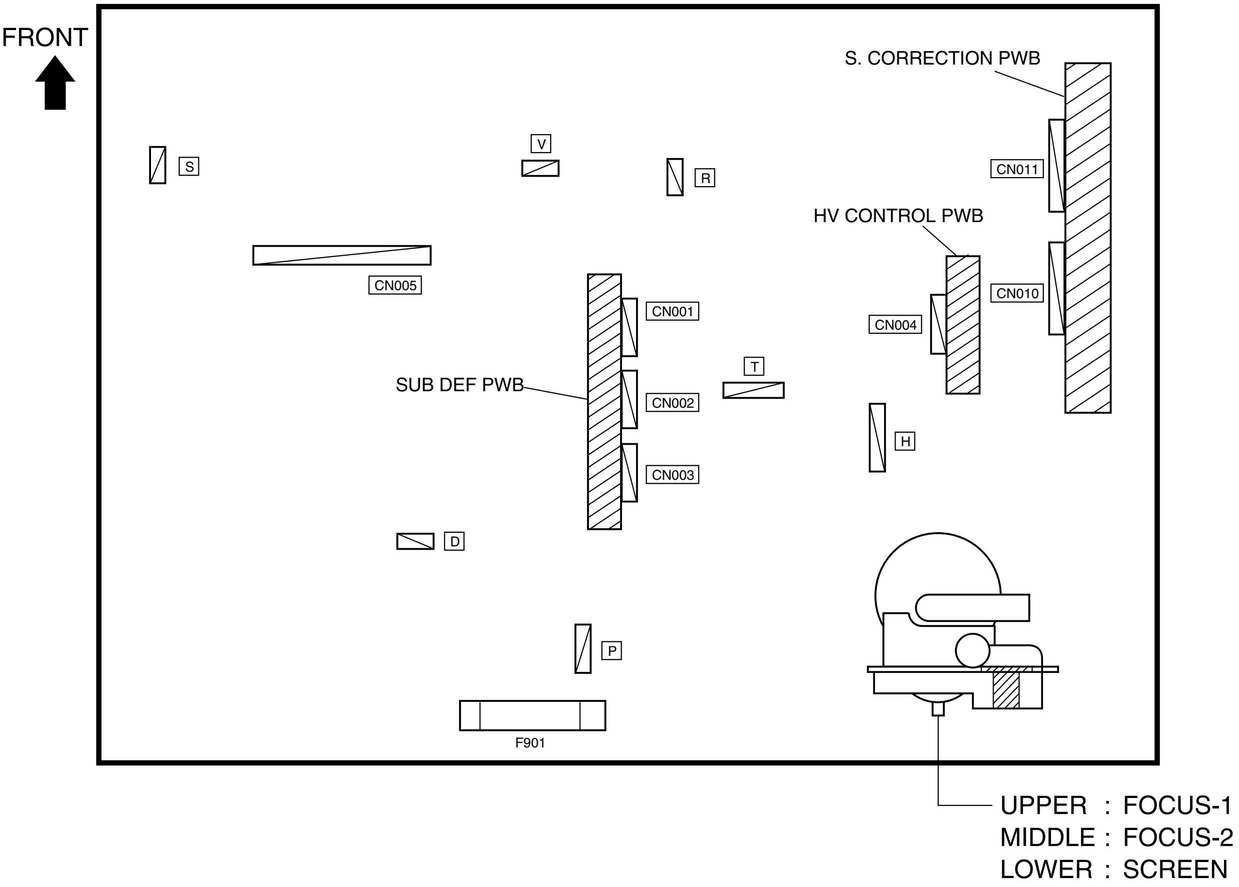
CN0RD
CN00R
VR503 ROTATION
VR505 COVN_V
VR504 CONV_H
VR502 H.VOLTAGE
VR501 X-RAY
TP-XR
TP-G
TOP
FRONT
CN010
CN011

CRT SOCKET PWB (SOLDER SIDE)



TOP
U
TP-47R
TP-47B
IC001
TP-47G
TP-GND
E1
T

MAIN PWB



FRONT
S. CORRECTION PWB
S
V
R
CN011
HV CONTROL PWB
CN005
CN010
CN001
CN004
T
SUB DEF PWB
CN002
H
CN003
D
P
F901
UPPER : FOCUS-1
MIDDLE : FOCUS-2
LOWER : SCREEN

BASIC OPERATIONS OF SERVICE MENU

1. ITEMS IN THE SERVICE MENU

The service menu include the following items. The settings and adjustments are classified into these items.
Do not alter the values of unnecessary items.

SIGNAL BLOCK : Adjustments of the contrast, brightness, chroma and phase.
WHITE BALANCE BLOCK : Adjustments of the white balance.
DEFLECTION BLOCK : Adjustments of the deflection circuitry.
CPU BLOCK : Setting of the entire system by means of the control values of the microcomputer. (This block is usually not adjusted in servicing. Do not touch it except for adjustment items CC41 and CE05 to CE19.)
DIAGNOSIS : Display of the results of self diagnosis.
UPC1884 ADJ. : Display of the status of UPC1884 which is the DEF processor IC. (Do not adjust this item because it is not required for servicing.)
TA1276 ADJ. : Display of the status of TA1276 which is the RGB processor IC. (Do not adjust this item because it is not required for servicing.)
HOUR METER : Display of the hour meter count.
UPDATE CPU PROGRAM : Display of the software version.
INITIALIZE EEPROM : Initialization of the user-setting menu. (Do not adjust this item because it is not required for servicing.)

2. BASIC OPERATIONS IN THE SERVICE MENU

(1) Entering the Service Menu
Use the front panel keys to display the Service Menu (Fig. 1).

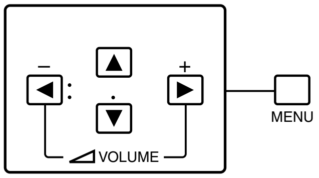


Fig. 1 FRONT PANEL KEYS

① While holding the ▼ key, press the **MENU** key.

The "⚠" mark appears at the center of the screen (Fig. 2).

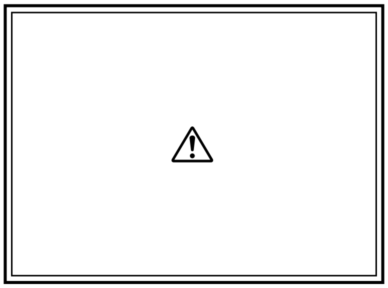
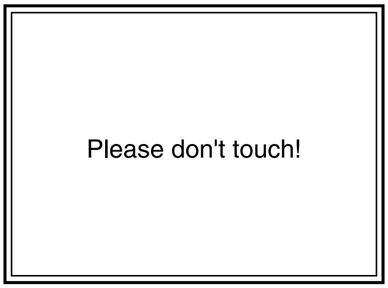


Fig. 2 WRNING MARK

② Before the "⚠" mark disappears (within 5 seconds after it appears), hold the ▼ key and press the **VOL-** (◄) key.

Warning message "**Please don't touch**" appears on the screen (Fig. 3).



Please don't touch!

Fig. 3 WARNING MESSAGE DISPLAY

③ Before the warning message disappears (within 5 seconds after it appears), press the **VOL+** (►) key.

The service menu items appears on the display (Fig. 4).

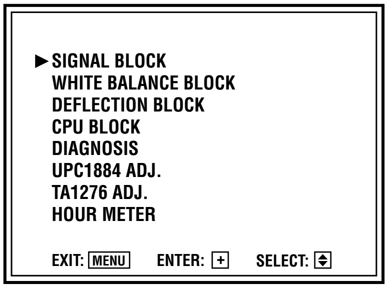
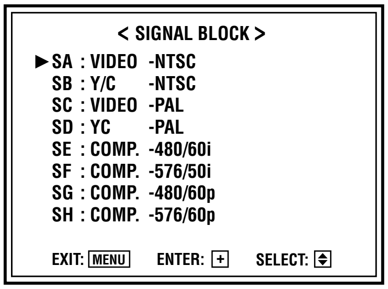


Fig. 4 SERVICE MENU

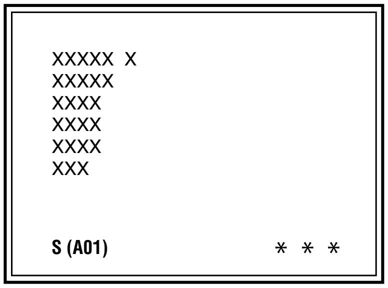
(2) Setting the Service Menu items

① With the Service Menu displayed, press the ▼ key to select the item to be adjusted, then press the **VOL+** (▶) key to enter the submenu for the item.


< SIGNAL BLOCK >
▶SA : VIDEO -NTSC
SB : Y/C -NTSC
SC : VIDEO -PAL
SD : YC -PAL
SE : COMP. -480/60i
SF : COMP. -576/50i
SG : COMP. -480/60p
SH : COMP. -576/60p
EXIT: MENU
ENTER: +
SELECT: ⇕

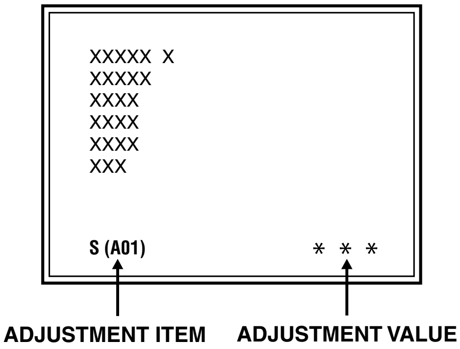
SUBMENU

② Press the ▼ key to select the item to be adjusted, then press the **VOL+** (▶) key to enter the item.


XXXXX X
XXXXX
XXXX
XXXX
XXXX
XXX
S (A01)
* * *

ADJUSTMENT ITEM DISPLAY

③ Set the adjustment item by varying it with the **VOL-** (◀) and **VOL+** (▶) keys.


XXXXX X
XXXXX
XXXX
XXXX
XXXX
XXX
S (A01)
* * *
ADJUSTMENT ITEM
ADJUSTMENT VALUE

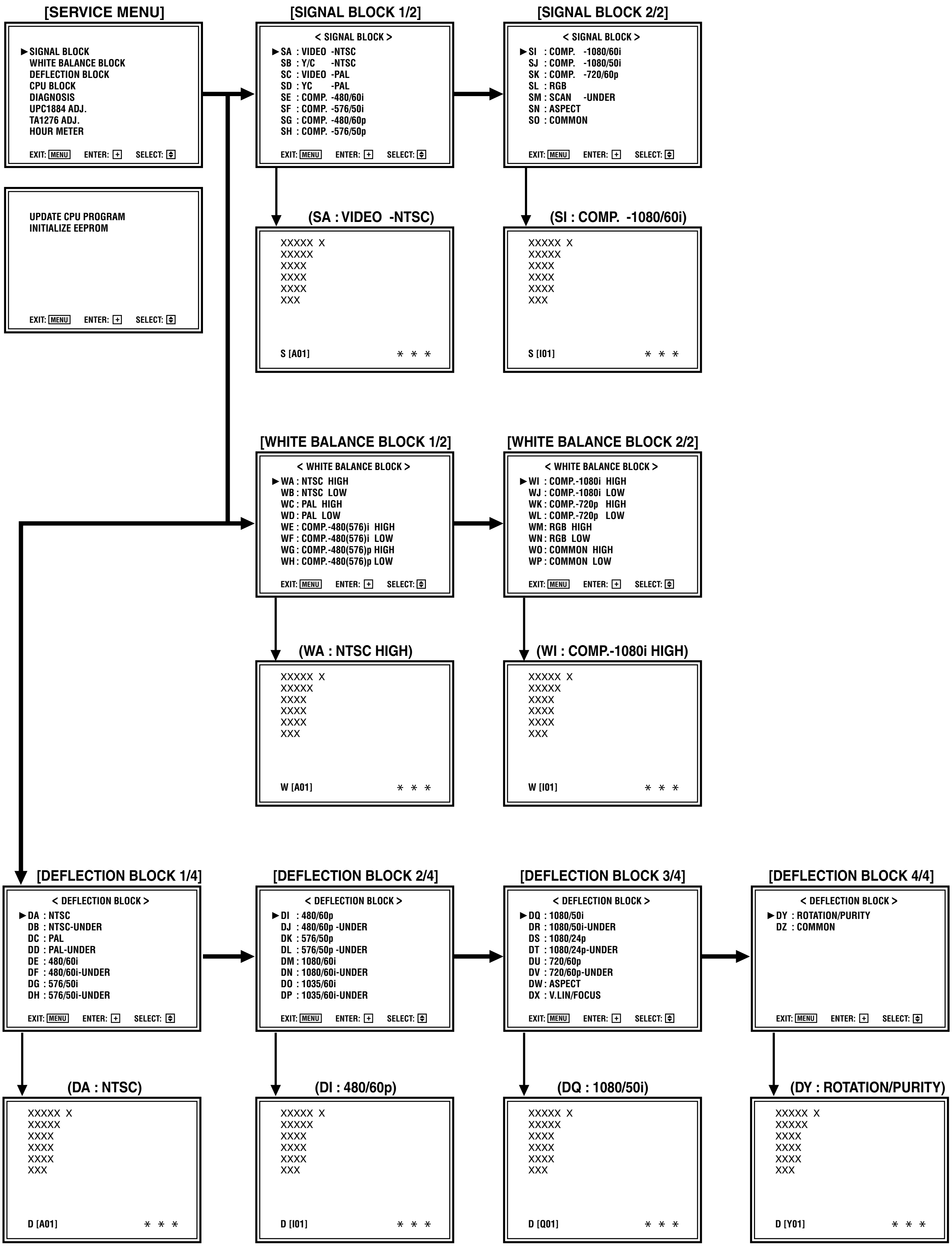
(3) Exiting from the Service Menu

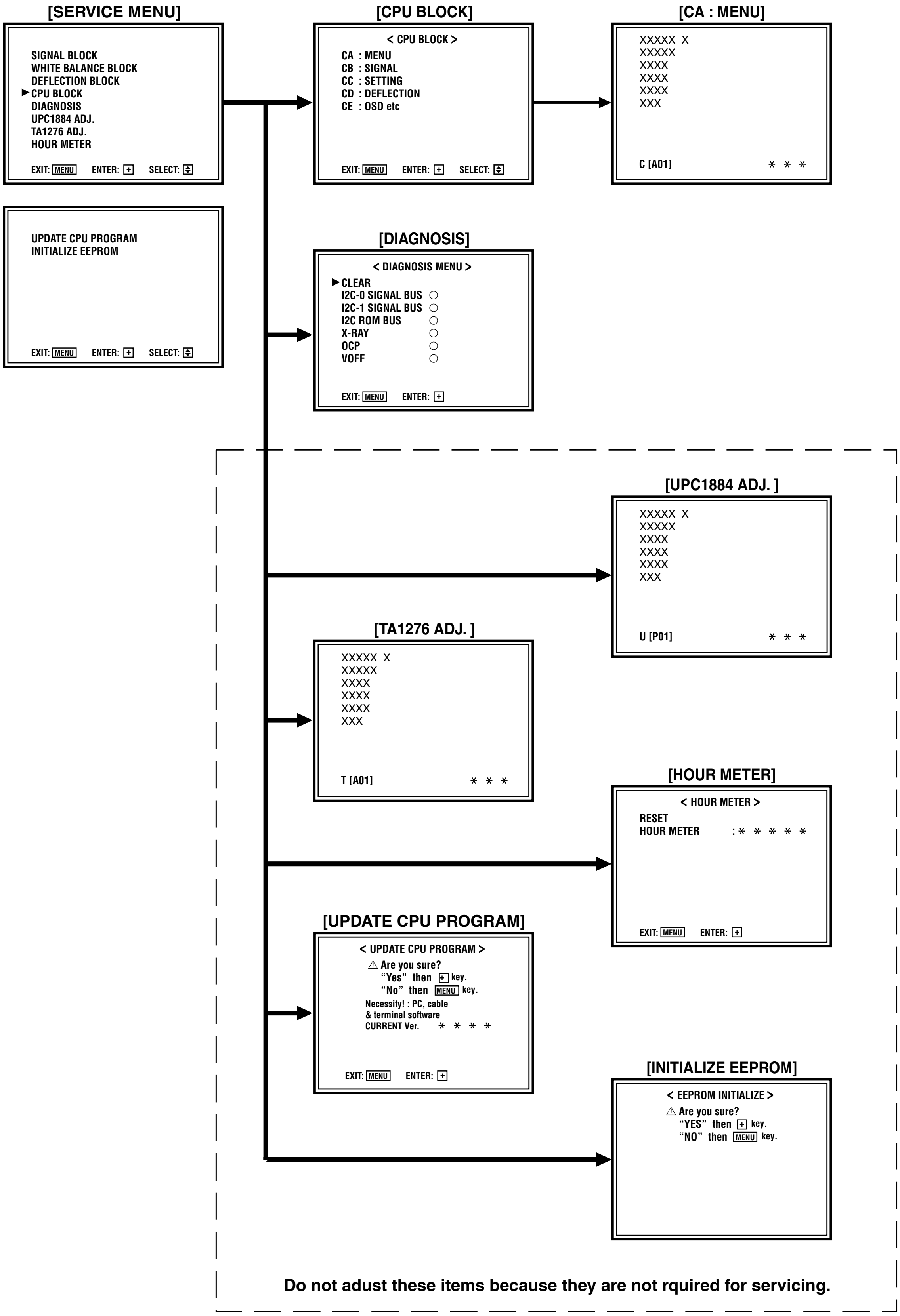
① After completing the adjustment of an item, press the **MENU** key to return to the submenu.

② Press the **MENU** key again to return to the Service Menu.

③ Press the **MENU** key again to return to the normal screen.

SCREEN CONFIGURATION OF THE SERVICE MENU


[SERVICE MENU]
►SIGNAL BLOCK
WHITE BALANCE BLOCK
DEFLECTION BLOCK
CPU BLOCK
DIAGNOSIS
UPC1884 ADJ.
TA1276 ADJ.
HOUR METER
EXIT: MENU ENTER: + SELECT: ⇕
UPDATE CPU PROGRAM
INITIALIZE EEPROM
EXIT: MENU ENTER: + SELECT: ⇕
[SIGNAL BLOCK 1/2]
< SIGNAL BLOCK >
►SA : VIDEO -NTSC
SB : Y/C -NTSC
SC : VIDEO -PAL
SD : YC -PAL
SE : COMP. -480/60i
SF : COMP. -576/50i
SG : COMP. -480/60p
SH : COMP. -576/50p
EXIT: MENU ENTER: + SELECT: ⇕
[SIGNAL BLOCK 2/2]
< SIGNAL BLOCK >
►SI : COMP. -1080/60i
SJ : COMP. -1080/50i
SK : COMP. -720/60p
SL : RGB
SM : SCAN -UNDER
SN : ASPECT
SO : COMMON
EXIT: MENU ENTER: + SELECT: ⇕
(SA : VIDEO -NTSC)
XXXXX X
XXXXX
XXXX
XXXX
XXXX
XXX
S [A01] * * *
(SI : COMP. -1080/60i)
XXXXX X
XXXXX
XXXX
XXXX
XXXX
XXX
S [I01] * * *
[WHITE BALANCE BLOCK 1/2]
< WHITE BALANCE BLOCK >
►WA : NTSC HIGH
WB : NTSC LOW
WC : PAL HIGH
WD : PAL LOW
WE : COMP.-480(576)i HIGH
WF : COMP.-480(576)i LOW
WG : COMP.-480(576)p HIGH
WH : COMP.-480(576)p LOW
EXIT: MENU ENTER: + SELECT: ⇕
[WHITE BALANCE BLOCK 2/2]
< WHITE BALANCE BLOCK >
►WI : COMP.-1080i HIGH
WJ : COMP.-1080i LOW
WK : COMP.-720p HIGH
WL : COMP.-720p LOW
WM: RGB HIGH
WN: RGB LOW
WO : COMMON HIGH
WP : COMMON LOW
EXIT: MENU ENTER: + SELECT: ⇕
(WA : NTSC HIGH)
XXXXX X
XXXXX
XXXX
XXXX
XXXX
XXX
W [A01] * * *
(WI : COMP.-1080i HIGH)
XXXXX X
XXXXX
XXXX
XXXX
XXXX
XXX
W [I01] * * *
[DEFLECTION BLOCK 1/4]
< DEFLECTION BLOCK >
►DA : NTSC
DB : NTSC-UNDER
DC : PAL
DD : PAL-UNDER
DE : 480/60i
DF : 480/60i-UNDER
DG : 576/50i
DH : 576/50i-UNDER
EXIT: MENU ENTER: + SELECT: ⇕
[DEFLECTION BLOCK 2/4]
< DEFLECTION BLOCK >
►DI : 480/60p
DJ : 480/60p -UNDER
DK : 576/50p
DL : 576/50p -UNDER
DM : 1080/60i
DN : 1080/60i-UNDER
DO : 1035/60i
DP : 1035/60i-UNDER
EXIT: MENU ENTER: + SELECT: ⇕
[DEFLECTION BLOCK 3/4]
< DEFLECTION BLOCK >
►DQ : 1080/50i
DR : 1080/50i-UNDER
DS : 1080/24p
DT : 1080/24p-UNDER
DU : 720/60p
DV : 720/60p-UNDER
DW : ASPECT
DX : V.LIN/FOCUS
EXIT: MENU ENTER: + SELECT: ⇕
[DEFLECTION BLOCK 4/4]
< DEFLECTION BLOCK >
►DY : ROTATION/PURITY
DZ : COMMON
EXIT: MENU ENTER: + SELECT: ⇕
(DA : NTSC)
XXXXX X
XXXXX
XXXX
XXXX
XXXX
XXX
D [A01] * * *
(DI : 480/60p)
XXXXX X
XXXXX
XXXX
XXXX
XXXX
XXX
D [I01] * * *
(DQ : 1080/50i)
XXXXX X
XXXXX
XXXX
XXXX
XXXX
XXX
D [Q01] * * *
(DY : ROTATION/PURITY)
XXXXX X
XXXXX
XXXX
XXXX
XXXX
XXX
D [Y01] * * *


Do not adust these items because they are not rquired for servicing.
[SERVICE MENU]
SIGNAL BLOCK
WHITE BALANCE BLOCK
DEFLECTION BLOCK
▶CPU BLOCK
DIAGNOSIS
UPC1884 ADJ.
TA1276 ADJ.
HOUR METER
EXIT: MENU ENTER: + SELECT: ⇕
UPDATE CPU PROGRAM
INITIALIZE EEPROM
EXIT: MENU ENTER: + SELECT: ⇕
[CPU BLOCK]
< CPU BLOCK >
CA : MENU
CB : SIGNAL
CC : SETTING
CD : DEFLECTION
CE : OSD etc
EXIT: MENU ENTER: + SELECT: ⇕
[CA : MENU]
XXXXX X
XXXXX
XXXX
XXXX
XXXX
XXX
C [A01] * * *
[DIAGNOSIS]
< DIAGNOSIS MENU >
▶CLEAR
I2C-0 SIGNAL BUS ○
I2C-1 SIGNAL BUS ○
I2C ROM BUS ○
X-RAY ○
OCP ○
VOFF ○
EXIT: MENU ENTER: +
[UPC1884 ADJ.]
XXXXX X
XXXXX
XXXX
XXXX
XXXX
XXX
U [P01] * * *
[TA1276 ADJ.]
XXXXX X
XXXXX
XXXX
XXXX
XXXX
XXX
T [A01] * * *
[HOUR METER]
< HOUR METER >
RESET
HOUR METER : * * * * *
EXIT: MENU ENTER: +
[UPDATE CPU PROGRAM]
< UPDATE CPU PROGRAM >
⚠ Are you sure?
"Yes" then + key.
"No" then MENU key.
Necessity! : PC, cable
& terminal software
CURRENT Ver. * * * *
EXIT: MENU ENTER: +
[INITIALIZE EEPROM]
< EEPROM INITIALIZE >
⚠ Are you sure?
"YES" then + key.
"NO" then MENU key.

REFERENCE VALUES FOR THE SERVICE MENU ADJUSTMENTS

Note that the following values other than the fixed values should simply be used as references during adjustments. Their correct values may be variable depending on individual units.

■ SIGNAL BLOCK

Adjustment Item	Function	Variable range	Reference value
SA [VIDEO-NTSC]			
S[A01]	CONTRAST	-064 — +063	+003
S[A02]	BRIGHT HIGH	-128 — +127	000
S[A03]	CHROMA	-064 — +063	+008
S[A04]	PHASE	-064 — +063	+020
S[A05]	APERTURE	-064 — +063	000
S[A06]	BRIGHT LOW	-128 — +127	+001
S[A07]	Y DL	000/001	000 (Fixed value)
S[A08]	R-Y PHASE	000 — 003	000 (Fixed value)
S[A09]	R/B GAIN	000 — 003	002 (Fixed value)
S[A10]	G-Y PHASE	000 — 003	002 (Fixed value)
S[A11]	G/B GAIN	000 — 003	003 (Fixed value)
SB [Y/C-NTSC]			
S[B01]	CONTRAST	-064 — +063	-005
S[B02]	BRIGHT HIGH	-128 — +127	000
S[B03]	CHROMA	-064 — +063	-001
S[B04]	PHASE	-064 — +063	+020
S[B05]	APERTURE	-064 — +063	000
S[B06]	BRIGHT LOW	-128 — +127	+001
S[B07]	Y DL	000/001	000 (Fixed value)
S[B08]	R-Y PHASE	000 — 003	000 (Fixed value)
S[B09]	R/B GAIN	000 — 003	002 (Fixed value)
S[B10]	G-Y PHASE	000 — 003	002 (Fixed value)
S[B11]	G/B GAIN	000 — 003	003 (Fixed value)
SC [VIDEO-PAL]			
S[C01]	CONTRAST	-064 — +063	-007
S[C02]	BRIGHT HIGH	-128 — +127	000
S[C03]	CHROMA	-064 — +063	-002
S[C04]	PHASE	-064 — +063	000
S[C05]	APERTURE	-064 — +063	000
S[C06]	BRIGHT LOW	-128 — +127	-001
S[C07]	Y DL	000/001	000 (Fixed value)
S[C08]	R-Y PHASE	000 — 003	000 (Fixed value)
S[C09]	R/B GAIN	000 — 003	002 (Fixed value)
S[C10]	G-Y PHASE	000 — 003	002 (Fixed value)
S[C11]	G/B GAIN	000 — 003	003 (Fixed value)
SD [YC-PAL]			
S[D01]	CONTRAST	-064 — +063	-005
S[D02]	BRIGHT HIGH	-128 — +127	000
S[D03]	CHROMA	-064 — +063	-005

Adjustment Item	Function	Variable range	Reference value
S[D04]	PHASE	-064 — +063	000
S[D05]	APERTURE	-064 — +063	000
S[D06]	BRIGHT LOW	-128 — +127	-001
S[D07]	Y DL	000/001	000 (Fixed value)
S[D08]	R-Y PHASE	000 — 003	000 (Fixed value)
S[D09]	R/B GAIN	000 — 003	002 (Fixed value)
S[D10]	G-Y PHASE	000 — 003	002 (Fixed value)
S[D11]	G/B GAIN	000 — 003	003 (Fixed value)
SE [COMP.-480/60i]			
S[E01]	CONTRAST	-064 — +063	-002
S[E02]	BRIGHT HIGH	-128 — +127	000
S[E03]	CHROMA	-064 — +063	-002
S[E04]	PHASE	-064 — +063	001
S[E05]	APERTURE	-064 — +063	000
S[E06]	BRIGHT LOW	-128 — +127	000
S[E07]	Y DL	000/001	000 (Fixed value)
S[E08]	R-Y PHASE	000 — 003	000 (Fixed value)
S[E09]	R/B GAIN	000 — 003	002 (Fixed value)
S[E10]	G-Y PHASE	000 — 003	002 (Fixed value)
S[E11]	G/B GAIN	000 — 003	003 (Fixed value)
SF [COMP.-576/50i]			
S[F01]	CONTRAST	-064 — +063	000
S[F02]	BRIGHT HIGH	-128 — +127	000
S[F03]	CHROMA	-064 — +063	000
S[F04]	PHASE	-064 — +063	000
S[F05]	APERTURE	-064 — +063	000
S[F06]	BRIGHT LOW	-128 — +127	000
S[F07]	Y DL	000/001	000 (Fixed value)
S[F08]	R-Y PHASE	000 — 003	000 (Fixed value)
S[F09]	R/B GAIN	000 — 003	002 (Fixed value)
S[F10]	G-Y PHASE	000 — 003	002 (Fixed value)
S[F11]	G/B GAIN	000 — 003	003 (Fixed value)
SG [COMP.-480/60p]			
S[G01]	CONTRAST	-064 — +063	000
S[G02]	BRIGHT HIGH	-128 — +127	000
S[G03]	CHROMA	-064 — +063	000
S[G04]	PHASE	-064 — +063	000
S[G05]	APERTURE	-064 — +063	000
S[G06]	BRIGHT LOW	-128 — +127	000
S[G07]	Y DL	000/001	000 (Fixed value)
S[G08]	R-Y PHASE	000 — 003	000 (Fixed value)
S[G09]	R/B GAIN	000 — 003	002 (Fixed value)
S[G10]	G-Y PHASE	000 — 003	002 (Fixed value)
S[G11]	G/B GAIN	000 — 003	003 (Fixed value)

Adjustment Item	Function	Variable range	Reference value
SH [COMP.-576/50p]			
S[H01]	CONTRAST	-064 — +063	000
S[H02]	BRIGHT HIGH	-128 — +127	000
S[H03]	CHROMA	-064 — +063	000
S[H04]	PHASE	-064 — +063	000
S[H05]	APERTURE	-064 — +063	000
S[H06]	BRIGHT LOW	-128 — +127	000
S[H07]	Y DL	000/001	000 (Fixed value)
S[H08]	R-Y PHASE	000 — 003	000 (Fixed value)
S[H09]	R/B GAIN	000 — 003	002 (Fixed value)
S[H10]	G-Y PHASE	000 — 003	002 (Fixed value)
S[H11]	G/B GAIN	000 — 003	003 (Fixed value)
SI [COMP.-1080/60i]			
S[I01]	CONTRAST	-064 — +063	000
S[I02]	BRIGHT HIGH	-128 — +127	000
S[I03]	CHROMA	-064 — +063	000
S[I04]	PHASE	-064 — +063	000
S[I05]	APERTURE	-064 — +063	000
S[I06]	BRIGHT LOW	-128 — +127	000
S[I07]	Y DL	000/001	000 (Fixed value)
S[I08]	R-Y PHASE	000 — 003	000 (Fixed value)
S[I09]	R/B GAIN	000 — 003	003 (Fixed value)
S[I10]	G-Y PHASE	000 — 003	002 (Fixed value)
S[I11]	G/B GAIN	000 — 003	000 (Fixed value)
SJ [COMP.-1080/50i]			
S[J01]	CONTRAST	-064 — +063	000
S[J02]	BRIGHT HIGH	-128 — +127	000
S[J03]	CHROMA	-064 — +063	000
S[J04]	PHASE	-064 — +063	000
S[J05]	APERTURE	-064 — +063	000
S[J06]	BRIGHT LOW	-128 — +127	000
S[J07]	Y DL	000/001	000 (Fixed value)
S[J08]	R-Y PHASE	000 — 003	000 (Fixed value)
S[J09]	R/B GAIN	000 — 003	003 (Fixed value)
S[J10]	G-Y PHASE	000 — 003	002 (Fixed value)
S[J11]	G/B GAIN	000 — 003	000 (Fixed value)
SK [COMP.-720/60p]			
S[K01]	CONTRAST	-064 — +063	000
S[K02]	BRIGHT HIGH	-128 — +127	000
S[K03]	CHROMA	-064 — +063	000
S[K04]	PHASE	-064 — +063	000
S[K05]	APERTURE	-064 — +063	000
S[K06]	BRIGHT LOW	-128 — +127	000

Adjustment Item	Function	Variable range	Reference value
S[K07]	Y DL	000/001	000 (Fixed value)
S[K08]	R-Y PHASE	000 — 003	000 (Fixed value)
S[K09]	R/B GAIN	000 — 003	003 (Fixed value)
S[K10]	G-Y PHASE	000 — 003	002 (Fixed value)
S[K11]	G/B GAIN	000 — 003	000 (Fixed value)
SL [RGB]			
S[L01]	CONTRAST	-064 — +063	000
S[L02]	BRIGHT HIGH	-128 — +127	-70
S[L03]	BRIGHT LOW	-128 — +127	-70
SM [SCAN-UNDER]			
S[M01]	NTSC-COMPOS. CONTRAST	-064 — +063	000
S[M02]	NTSC-COMPOS. BRIGHT HIGH	-128 — +127	000
S[M03]	NTSC-COMPOS. BRIGHT LOW	-128 — +127	000
S[M04]	NTSC-Y/C CONTRAST	-064 — +063	000
S[M05]	NTSC-Y/C BRIGHT HIGH	-128 — +127	000
S[M06]	NTSC-Y/C BRIGHT LOW	-128 — +127	000
S[M07]	PAL-COMPOS. CONTRAST	-064 — +063	000
S[M08]	PAL-COMPOS. BRIGHT HIGH	-128 — +127	000
S[M09]	PAL-COMPOS. BRIGHT LOW	-128 — +127	000
S[M10]	PAL-Y/C CONTRAST	-064 — +063	000
S[M11]	PAL-Y/C BRIGHT HIGH	-128 — +127	000
S[M12]	PAL-Y/C BRIGHT LOW	-128 — +127	000
S[M13]	480i CONTRAST	-064 — +063	000
S[M14]	480i BRIGHT HIGH	-128 — +127	000
S[M15]	480i BRIGHT LOW	-128 — +127	000
S[M16]	576i CONTRAST	-064 — +063	000
S[M17]	576i BRIGHT HIGH	-128 — +127	000
S[M18]	576i BRIGHT LOW	-128 — +127	000
S[M19]	480p CONTRAST	-064 — +063	000
S[M20]	480p BRIGHT HIGH	-128 — +127	000
S[M21]	480p BRIGHT LOW	-128 — +127	000
S[M22]	576p CONTRAST	-064 — +063	000
S[M23]	576p BRIGHT HIGH	-128 — +127	000
S[M24]	576p BRIGHT LOW	-128 — +127	000
S[M25]	1080/60i,1035/60i CONTRAST	-064 — +063	000
S[M26]	1080/60i,1035/60i BRIGHT HIGH	-128 — +127	000
S[M27]	1080/60i,1035/60i BRIGHT LOW	-128 — +127	000
S[M28]	1080/50i,1080/24p CONTRAST	-064 — +063	000
S[M29]	1080/50i,1080/24p BRIGHT HIGH	-128 — +127	000
S[M30]	1080/50i,1080/24p BRIGHT LOW	-128 — +127	000
S[M31]	720p CONTRAST	-064 — +063	000
S[M32]	720p BRIGHT HIGH	-128 — +127	000
S[M33]	720p BRIGHT LOW	-128 — +127	000

Adjustment Item	Function	Variable range	Reference value
SN [ASPECT]			
S[N01]	NTSC-COMPOS. OVERSCAN CONTRAST	-064 — +063	000
S[N02]	NTSC-COMPOS. OVERSCAN BRIGHT HIGH	-128 — +127	000
S[N03]	NTSC-COMPOS. OVERSCAN BRIGHT LOW	-128 — +127	000
S[N04]	NTSC-COMPOS. UNDERSCAN CONTRAST	-064 — +063	000
S[N05]	NTSC-COMPOS. UNDERSCAN BRIGHT HIGH	-128 — +127	000
S[N06]	NTSC-COMPOS. UNDERSCAN BRIGHT LOW	-128 — +127	000
S[N07]	NTSC-Y/C OVERSCAN CONTRAST	-064 — +063	000
S[N08]	NTSC-Y/C OVERSCAN BRIGHT HIGH	-128 — +127	000
S[N09]	NTSC-Y/C OVERSCAN BRIGHT LOW	-128 — +127	000
S[N10]	NTSC-Y/C UNDERSCAN CONTRAST	-064 — +063	000
S[N11]	NTSC-Y/C UNDERSCAN BRIGHT HIGH	-128 — +127	000
S[N12]	NTSC-Y/C UNDERSCAN BRIGHT LOW	-128 — +127	000
S[N13]	PAL-COMPOS. OVERSCAN CONTRAST	-064 — +063	000
S[N14]	PAL-COMPOS. OVERSCAN BRIGHT HIGH	-128 — +127	000
S[N15]	PAL-COMPOS. OVERSCAN BRIGHT LOW	-128 — +127	000
S[N16]	PAL-COMPOS. UNDERSCAN CONTRAST	-064 — +063	000
S[N17]	PAL-COMPOS. UNDERSCAN BRIGHT HIGH	-128 — +127	000
S[N18]	PAL-COMPOS. UNDERSCAN BRIGHT LOW	-128 — +127	000
S[N19]	PAL-Y/C OVERSCAN CONTRAST	-064 — +063	000
S[N20]	PAL-Y/C OVERSCAN BRIGHT HIGH	-128 — +127	000
S[N21]	PAL-Y/C OVERSCAN BRIGHT LOW	-128 — +127	000
S[N22]	PAL-Y/C UNDERSCAN CONTRAST	-064 — +063	000
S[N23]	PAL-Y/C UNDERSCAN BRIGHT HIGH	-128 — +127	000
S[N24]	PAL-Y/C UNDERSCAN BRIGHT LOW	-128 — +127	000
S[N25]	480i OVERSCAN CONTRAST	-064 — +063	000
S[N26]	480i OVERSCAN BRIGHT HIGH	-128 — +127	000
S[N27]	480i OVERSCAN BRIGHT LOW	-128 — +127	000
S[N28]	480i UNDERSCAN CONTRAST	-064 — +063	000
S[N29]	480i UNDERSCAN BRIGHT HIGH	-128 — +127	000
S[N30]	480i UNDERSCAN BRIGHT LOW	-128 — +127	000
S[N31]	576i OVERSCAN CONTRAST	-064 — +063	000
S[N32]	576i OVERSCAN BRIGHT HIGH	-128 — +127	000
S[N33]	576i OVERSCAN BRIGHT LOW	-128 — +127	000
S[N34]	576i UNDERSCAN CONTRAST	-064 — +063	000
S[N35]	576i UNDERSCAN BRIGHT HIGH	-128 — +127	000
S[N36]	576i UNDERSCAN BRIGHT LOW	-128 — +127	000
S[N37]	480p OVERSCAN CONTRAST	-064 — +063	000
S[N38]	480p OVERSCAN BRIGHT HIGH	-128 — +127	000
S[N39]	480p OVERSCAN BRIGHT LOW	-128 — +127	000
S[N40]	480p UNDERSCAN CONTRAST	-064 — +063	000
S[N41]	480p UNDERSCAN BRIGHT HIGH	-128 — +127	000
S[N42]	480p UNDERSCAN BRIGHT LOW	-128 — +127	000

Adjustment Item	Function	Variable range	Reference value
S[N43]	576p OVERSCAN CONTRAST	-064 — +063	000
S[N44]	576p OVERSCAN BRIGHT HIGH	-128 — +127	000
S[N45]	576p OVERSCAN BRIGHT LOW	-128 — +127	000
S[N46]	576p UNDERSCAN CONTRAST	-064 — +063	000
S[N47]	576p UNDERSCAN BRIGHT HIGH	-128 — +127	000
S[N48]	576p UNDERSCAN BRIGHT LOW	-128 — +127	000
SO [COMMON]	* When the value of item SO is changed, items SA to SK should be re-adjusted.		
S[O01]	CONTRAST	000 — 127	085
S[O02]	BRIGHT HIGH	000 — 255	128
S[O03]	CHROMA	000 — 127	064
S[O04]	PHASE	000 — 127	064
S[O05]	APERTURE	000 — 127	035
S[O06]	BRIGHT LOW	-128 — +127	000
S[O07]	Y DL	000/001	000 (Fixed value)
S[O08]	R-Y PHASE	000 — 003	000 (Fixed value)
S[O09]	R/B GAIN	000 — 003	003 (Fixed value)
S[O10]	G-Y PHASE	000 — 003	002 (Fixed value)
S[O11]	G/B GAIN	000 — 003	000 (Fixed value)

■ WHITE BALANCE BLOCK

Adjustment Item	Function	Variable range	Reference value
WA [NTSC(COMPOS.,Y/C) HIGH]			
W[A01]	DRIVE (R)	-128 — +127	000
W[A02]	DRIVE (G)	-128 — +127	000
W[A03]	DRIVE (B)	-128 — +127	000
W[A04]	CUTOFF (R)	-128 — +127	000
W[A05]	CUTOFF (G)	-128 — +127	000
W[A06]	CUTOFF (B)	-128 — +127	000
WB [NTSC(COMPOS.,Y/C) LOW]			
W[B01]	DRIVE (R)	-128 — +127	000
W[B02]	DRIVE (G)	-128 — +127	000
W[B03]	DRIVE (B)	-128 — +127	000
W[B04]	CUTOFF (R)	-128 — +127	000
W[B05]	CUTOFF (G)	-128 — +127	000
W[B06]	CUTOFF (B)	-128 — +127	000
WC [PAL(COMPOS.,Y/C) HIGH]			
W[C01]	DRIVE (R)	-128 — +127	000
W[C02]	DRIVE (G)	-128 — +127	000
W[C03]	DRIVE (B)	-128 — +127	000
W[C04]	CUTOFF (R)	-128 — +127	000
W[C05]	CUTOFF (G)	-128 — +127	000
W[C06]	CUTOFF (B)	-128 — +127	000
WD [PAL(COMPOS.,Y/C) LOW]			
W[D01]	DRIVE (R)	-128 — +127	000
W[D02]	DRIVE (G)	-128 — +127	000
W[D03]	DRIVE (B)	-128 — +127	000
W[D04]	CUTOFF (R)	-128 — +127	000
W[D05]	CUTOFF (G)	-128 — +127	000
W[D06]	CUTOFF (B)	-128 — +127	000
WE [COMP.-480(576)i HIGH]			
W[E01]	DRIVE (R)	-128 — +127	000
W[E02]	DRIVE (G)	-128 — +127	000
W[E03]	DRIVE (B)	-128 — +127	000
W[E04]	CUTOFF (R)	-128 — +127	000
W[E05]	CUTOFF (G)	-128 — +127	000
W[E06]	CUTOFF (B)	-128 — +127	000
WF [COMP.-480(576)i LOW]			
W[F01]	DRIVE (R)	-128 — +127	000
W[F02]	DRIVE (G)	-128 — +127	000
W[F03]	DRIVE (B)	-128 — +127	000
W[F04]	CUTOFF (R)	-128 — +127	000
W[F05]	CUTOFF (G)	-128 — +127	000
W[F06]	CUTOFF (B)	-128 — +127	000

Adjustment Item	Function	Variable range	Reference value
WG [COMP.-480(576)p HIGH]			
W[G01]	DRIVE (R)	-128 — +127	000
W[G02]	DRIVE (G)	-128 — +127	000
W[G03]	DRIVE (B)	-128 — +127	000
W[G04]	CUTOFF (R)	-128 — +127	000
W[G05]	CUTOFF (G)	-128 — +127	000
W[G06]	CUTOFF (B)	-128 — +127	000
WH [COMP.-480(576)p LOW]			
W[H01]	DRIVE (R)	-128 — +127	000
W[H02]	DRIVE (G)	-128 — +127	000
W[H03]	DRIVE (B)	-128 — +127	000
W[H04]	CUTOFF (R)	-128 — +127	000
W[H05]	CUTOFF (G)	-128 — +127	000
W[H06]	CUTOFF (B)	-128 — +127	000
WI [COMP.-1080i(1035/60i,1080/60i) HIGH]			
W[I01]	DRIVE (R)	-128 — +127	000
W[I02]	DRIVE (G)	-128 — +127	000
W[I03]	DRIVE (B)	-128 — +127	000
W[I04]	CUTOFF (R)	-128 — +127	000
W[I05]	CUTOFF (G)	-128 — +127	000
W[I06]	CUTOFF (B)	-128 — +127	000
WJ [COMP.-1080i(1035/60i,1080/60i) LOW]			
W[J01]	DRIVE (R)	-128 — +127	000
W[J02]	DRIVE (G)	-128 — +127	000
W[J03]	DRIVE (B)	-128 — +127	000
W[J04]	CUTOFF (R)	-128 — +127	000
W[J05]	CUTOFF (G)	-128 — +127	000
W[J06]	CUTOFF (B)	-128 — +127	000
WK [COMP.-720p HIGH]			
W[K01]	DRIVE (R)	-128 — +127	000
W[K02]	DRIVE (G)	-128 — +127	000
W[K03]	DRIVE (B)	-128 — +127	000
W[K04]	CUTOFF (R)	-128 — +127	000
W[K05]	CUTOFF (G)	-128 — +127	000
W[K06]	CUTOFF (B)	-128 — +127	000
WL [COMP.-720p LOW]			
W[L01]	DRIVE (R)	-128 — +127	000
W[L02]	DRIVE (G)	-128 — +127	000
W[L03]	DRIVE (B)	-128 — +127	000
W[L04]	CUTOFF (R)	-128 — +127	000
W[L05]	CUTOFF (G)	-128 — +127	000
W[L06]	CUTOFF (B)	-128 — +127	000

Adjustment Item	Function	Variable range	Reference value
WM [RGB HIGH]			
W[M01]	DRIVE (R)	-128 — +127	000
W[M02]	DRIVE (G)	-128 — +127	000
W[M03]	DRIVE (B)	-128 — +127	000
W[M04]	CUTOFF (R)	-128 — +127	000
W[M05]	CUTOFF (G)	-128 — +127	000
W[M06]	CUTOFF (B)	-128 — +127	000
WN [RGB LOW]			
W[N01]	DRIVE (R)	-128 — +127	000
W[N02]	DRIVE (G)	-128 — +127	000
W[N03]	DRIVE (B)	-128 — +127	000
W[N04]	CUTOFF (R)	-128 — +127	000
W[N05]	CUTOFF (G)	-128 — +127	000
W[N06]	CUTOFF (B)	-128 — +127	000
WO [COMMON HIGH] * When the value of item WO is changed, items WA, WC, WE, WG, WI, WK and WM should be re-adjusted.			
W[O01]	DRIVE (R)	000 — 127	070
W[O02]	DRIVE (G)	000 — 127	064
W[O03]	DRIVE (B)	000 — 127	055
W[O04]	CUTOFF (R)	000 — 255	050
W[O05]	CUTOFF (G)	000 — 255	050
W[O06]	CUTOFF (B)	000 — 255	050
WP [COMMON LOW] * When the value of item WP is changed, items WB, WD, WF, WH, WJ, WL and WN should be re-adjusted.			
W[P01]	DRIVE (R)	000 — 127	075
W[P02]	DRIVE (G)	000 — 127	064
W[P03]	DRIVE (B)	000 — 127	040
W[P04]	CUTOFF (R)	000 — 255	050
W[P05]	CUTOFF (G)	000 — 255	050
W[P06]	CUTOFF (B)	000 — 255	050

■ DEFLECTION BLOCK

Adjustment Item	Function	Variable range	Reference value
DA [NTSC(COMPOS.,Y/C)]			
D[A01]	HORIZONTAL SIZE	-064 — +064	-023
D[A02]	VERTICAL SIZE	-064 — +064	+048
D[A03]	HORIZONTAL POSITION	-064 — +064	+012
D[A04]	VERTICAL POSITION	-064 — +064	+005
D[A05]	SIDE PIN DISTORTION	-032 — +032	+009
D[A06]	CORNER DISTORTION (W)	-032 — +032	-003
D[A07]	CORNER DISTORTION (S)	-032 — +032	000
D[A08]	PARALLELOGRAM DISTORTION	-032 — +032	+002
D[A09]	TRAPEZOIDAL DISTORTION	-032 — +032	+006
D[A10]	HORIZONTAL ARC DISTORTION	-032 — +032	000
D[A11]	VERTICAL LINEARITY (S CORRECTION)	-016 — +016	000
D[A12]	VERTICAL LINEARITY (C CORRECTION)	-016 — +016	+001
DB [NTSC(COMPOS.,Y/C)-UNDER]			
D[B01]	HORIZONTAL SIZE	-064 — +064	-010
D[B02]	VERTICAL SIZE	-064 — +064	-025
D[B03]	HORIZONTAL POSITION	-064 — +064	000
D[B04]	VERTICAL POSITION	-064 — +064	000
D[B05]	SIDE PIN DISTORTION	-032 — +032	000
D[B06]	CORNER DISTORTION (W)	-032 — +032	000
D[B07]	CORNER DISTORTION (S)	-032 — +032	000
D[B08]	PARALLELOGRAM DISTORTION	-032 — +032	000
D[B09]	TRAPEZOIDAL DISTORTION	-032 — +032	000
D[B10]	HORIZONTAL ARC DISTORTION	-032 — +032	000
D[B11]	VERTICAL LINEARITY (S CORRECTION)	-016 — +016	000
D[B12]	VERTICAL LINEARITY (C CORRECTION)	-016 — +016	000
DC [PAL(COMPOS.,Y/C)]			
D[C01]	HORIZONTAL SIZE	-064 — +064	-022
D[C02]	VERTICAL SIZE	-064 — +064	+048
D[C03]	HORIZONTAL POSITION	-064 — +064	+008
D[C04]	VERTICAL POSITION	-064 — +064	+012
D[C05]	SIDE PIN DISTORTION	-032 — +032	+009
D[C06]	CORNER DISTORTION (W)	-032 — +032	-002
D[C07]	CORNER DISTORTION (S)	-032 — +032	-001
D[C08]	PARALLELOGRAM DISTORTION	-032 — +032	000
D[C09]	TRAPEZOIDAL DISTORTION	-032 — +032	+008
D[C10]	HORIZONTAL ARC DISTORTION	-032 — +032	000
D[C11]	VERTICAL LINEARITY (S CORRECTION)	-016 — +016	-004
D[C12]	VERTICAL LINEARITY (C CORRECTION)	-016 — +016	+005
DD [PAL(COMPOS.,Y/C)-UNDER]			
D[D01]	HORIZONTAL SIZE	-064 — +064	-010
D[D02]	VERTICAL SIZE	-064 — +064	-025

Adjustment Item	Function	Variable range	Reference value
D[D03]	HORIZONTAL POSITION	-064 — +064	000
D[D04]	VERTICAL POSITION	-064 — +064	000
D[D05]	SIDE PIN DISTORTION	-032 — +032	000
D[D06]	CORNER DISTORTION (W)	-032 — +032	000
D[D07]	CORNER DISTORTION (S)	-032 — +032	000
D[D08]	PARALLELOGRAM DISTORTION	-032 — +032	000
D[D09]	TRAPEZOIDAL DISTORTION	-032 — +032	000
D[D10]	HORIZONTAL ARC DISTORTION	-032 — +032	000
D[D11]	VERTICAL LINEARITY (S CORRECTION)	-016 — +016	000
D[D12]	VERTICAL LINEARITY (C CORRECTION)	-016 — +016	000
DE [480/60i]			
D[E01]	HORIZONTAL SIZE	-064 — +064	-025
D[E02]	VERTICAL SIZE	-064 — +064	+050
D[E03]	HORIZONTAL POSITION	-064 — +064	+012
D[E04]	VERTICAL POSITION	-064 — +064	000
D[E05]	SIDE PIN DISTORTION	-032 — +032	+009
D[E06]	CORNER DISTORTION (W)	-032 — +032	-001
D[E07]	CORNER DISTORTION (S)	-032 — +032	-003
D[E08]	PARALLELOGRAM DISTORTION	-032 — +032	000
D[E09]	TRAPEZOIDAL DISTORTION	-032 — +032	+005
D[E10]	HORIZONTAL ARC DISTORTION	-032 — +032	000
D[E11]	VERTICAL LINEARITY (S CORRECTION)	-016 — +016	+001
D[E12]	VERTICAL LINEARITY (C CORRECTION)	-016 — +016	+001
DF [480/60i-UNDER]			
D[F01]	HORIZONTAL SIZE	-064 — +064	-011
D[F02]	VERTICAL SIZE	-064 — +064	-030
D[F03]	HORIZONTAL POSITION	-064 — +064	000
D[F04]	VERTICAL POSITION	-064 — +064	000
D[F05]	SIDE PIN DISTORTION	-032 — +032	000
D[F06]	CORNER DISTORTION (W)	-032 — +032	000
D[F07]	CORNER DISTORTION (S)	-032 — +032	000
D[F08]	PARALLELOGRAM DISTORTION	-032 — +032	000
D[F09]	TRAPEZOIDAL DISTORTION	-032 — +032	000
D[F10]	HORIZONTAL ARC DISTORTION	-032 — +032	000
D[F11]	VERTICAL LINEARITY (S CORRECTION)	-016 — +016	000
D[F12]	VERTICAL LINEARITY (C CORRECTION)	-016 — +016	000
DG [576/50i]			
D[G01]	HORIZONTAL SIZE	-064 — +064	-025
D[G02]	VERTICAL SIZE	-064 — +064	+050
D[G03]	HORIZONTAL POSITION	-064 — +064	+005
D[G04]	VERTICAL POSITION	-064 — +064	+005
D[G05]	SIDE PIN DISTORTION	-032 — +032	+009

Adjustment Item	Function	Variable range	Reference value
D[G06]	CORNER DISTORTION (W)	-032 — +032	-002
D[G07]	CORNER DISTORTION (S)	-032 — +032	-002
D[G08]	PARALLELOGRAM DISTORTION	-032 — +032	+002
D[G09]	TRAPEZOIDAL DISTORTION	-032 — +032	+010
D[G10]	HORIZONTAL ARC DISTORTION	-032 — +032	000
D[G11]	VERTICAL LINEARITY (S CORRECTION)	-016 — +016	-003
D[G12]	VERTICAL LINEARITY (C CORRECTION)	-016 — +016	+003
DH [576/50i-UNDER]			
D[H01]	HORIZONTAL SIZE	-064 — +064	-011
D[H02]	VERTICAL SIZE	-064 — +064	-030
D[H03]	HORIZONTAL POSITION	-064 — +064	000
D[H04]	VERTICAL POSITION	-064 — +064	000
D[H05]	SIDE PIN DISTORTION	-032 — +032	000
D[H06]	CORNER DISTORTION (W)	-032 — +032	000
D[H07]	CORNER DISTORTION (S)	-032 — +032	000
D[H08]	PARALLELOGRAM DISTORTION	-032 — +032	000
D[H09]	TRAPEZOIDAL DISTORTION	-032 — +032	000
D[H10]	HORIZONTAL ARC DISTORTION	-032 — +032	000
D[H11]	VERTICAL LINEARITY (S CORRECTION)	-016 — +016	000
D[H12]	VERTICAL LINEARITY (C CORRECTION)	-016 — +016	000
DI [480/60p]			
D[I01]	HORIZONTAL SIZE	-064 — +064	-022
D[I02]	VERTICAL SIZE	-064 — +064	+050
D[I03]	HORIZONTAL POSITION	-064 — +064	+007
D[I04]	VERTICAL POSITION	-064 — +064	+002
D[I05]	SIDE PIN DISTORTION	-032 — +032	+002
D[I06]	CORNER DISTORTION (W)	-032 — +032	-002
D[I07]	CORNER DISTORTION (S)	-032 — +032	-002
D[I08]	PARALLELOGRAM DISTORTION	-032 — +032	+001
D[I09]	TRAPEZOIDAL DISTORTION	-032 — +032	+010
D[I10]	HORIZONTAL ARC DISTORTION	-032 — +032	000
D[I11]	VERTICAL LINEARITY (S CORRECTION)	-016 — +016	-003
D[I12]	VERTICAL LINEARITY (C CORRECTION)	-016 — +016	+003
DJ [480/60p-UNDER]			
D[J01]	HORIZONTAL SIZE	-064 — +064	-010
D[J02]	VERTICAL SIZE	-064 — +064	-025
D[J03]	HORIZONTAL POSITION	-064 — +064	000
D[J04]	VERTICAL POSITION	-064 — +064	-002
D[J05]	SIDE PIN DISTORTION	-032 — +032	000
D[J06]	CORNER DISTORTION (W)	-032 — +032	000
D[J07]	CORNER DISTORTION (S)	-032 — +032	000
D[J08]	PARALLELOGRAM DISTORTION	-032 — +032	000

Adjustment Item	Function	Variable range	Reference value
D[J09]	TRAPEZOIDAL DISTORTION	-032 — +032	-003
D[J10]	HORIZONTAL ARC DISTORTION	-032 — +032	000
D[J11]	VERTICAL LINEARITY (S CORRECTION)	-016 — +016	000
D[J12]	VERTICAL LINEARITY (C CORRECTION)	-016 — +016	000
DK [576/50p]			
D[K01]	HORIZONTAL SIZE	-064 — +064	-023
D[K02]	VERTICAL SIZE	-064 — +064	+050
D[K03]	HORIZONTAL POSITION	-064 — +064	+003
D[K04]	VERTICAL POSITION	-064 — +064	+005
D[K05]	SIDE PIN DISTORTION	-032 — +032	+002
D[K06]	CORNER DISTORTION (W)	-032 — +032	000
D[K07]	CORNER DISTORTION (S)	-032 — +032	-005
D[K08]	PARALLELOGRAM DISTORTION	-032 — +032	+001
D[K09]	TRAPEZOIDAL DISTORTION	-032 — +032	+017
D[K10]	HORIZONTAL ARC DISTORTION	-032 — +032	000
D[K11]	VERTICAL LINEARITY (S CORRECTION)	-016 — +016	-002
D[K12]	VERTICAL LINEARITY (C CORRECTION)	-016 — +016	+003
DL [576/50p-UNDER]			
D[L01]	HORIZONTAL SIZE	-064 — +064	-010
D[L02]	VERTICAL SIZE	-064 — +064	-025
D[L03]	HORIZONTAL POSITION	-064 — +064	000
D[L04]	VERTICAL POSITION	-064 — +064	-002
D[L05]	SIDE PIN DISTORTION	-032 — +032	000
D[L06]	CORNER DISTORTION (W)	-032 — +032	000
D[L07]	CORNER DISTORTION (S)	-032 — +032	000
D[L08]	PARALLELOGRAM DISTORTION	-032 — +032	000
D[L09]	TRAPEZOIDAL DISTORTION	-032 — +032	-003
D[L10]	HORIZONTAL ARC DISTORTION	-032 — +032	000
D[L11]	VERTICAL LINEARITY (S CORRECTION)	-016 — +016	000
D[L12]	VERTICAL LINEARITY (C CORRECTION)	-016 — +016	000
DM [1080/60i]			
D[M01]	HORIZONTAL SIZE	-064 — +064	-020
D[M02]	VERTICAL SIZE	-064 — +064	+030
D[M03]	HORIZONTAL POSITION	-064 — +064	+023
D[M04]	VERTICAL POSITION	-064 — +064	-010
D[M05]	SIDE PIN DISTORTION	-032 — +032	+012
D[M06]	CORNER DISTORTION (W)	-032 — +032	-002
D[M07]	CORNER DISTORTION (S)	-032 — +032	-002
D[M08]	PARALLELOGRAM DISTORTION	-032 — +032	+002
D[M09]	TRAPEZOIDAL DISTORTION	-032 — +032	+002
D[M10]	HORIZONTAL ARC DISTORTION	-032 — +032	000
D[M11]	VERTICAL LINEARITY (S CORRECTION)	-016 — +016	000
D[M12]	VERTICAL LINEARITY (C CORRECTION)	-016 — +016	000

Adjustment Item	Function	Variable range	Reference value
DN [1080/60i-UNDER]			
D[N01]	HORIZONTAL SIZE	-064 — +064	-010
D[N02]	VERTICAL SIZE	-064 — +064	-030
D[N03]	HORIZONTAL POSITION	-064 — +064	000
D[N04]	VERTICAL POSITION	-064 — +064	-002
D[N05]	SIDE PIN DISTORTION	-032 — +032	000
D[N06]	CORNER DISTORTION (W)	-032 — +032	000
D[N07]	CORNER DISTORTION (S)	-032 — +032	000
D[N08]	PARALLELOGRAM DISTORTION	-032 — +032	000
D[N09]	TRAPEZOIDAL DISTORTION	-032 — +032	000
D[N10]	HORIZONTAL ARC DISTORTION	-032 — +032	000
D[N11]	VERTICAL LINEARITY (S CORRECTION)	-016 — +016	000
D[N12]	VERTICAL LINEARITY (C CORRECTION)	-016 — +016	000
DO [1035/60i]			
D[O01]	HORIZONTAL SIZE	-064 — +064	-020
D[O02]	VERTICAL SIZE	-064 — +064	+045
D[O03]	HORIZONTAL POSITION	-064 — +064	+022
D[O04]	VERTICAL POSITION	-064 — +064	+005
D[O05]	SIDE PIN DISTORTION	-032 — +032	+012
D[O06]	CORNER DISTORTION (W)	-032 — +032	000
D[O07]	CORNER DISTORTION (S)	-032 — +032	-002
D[O08]	PARALLELOGRAM DISTORTION	-032 — +032	+002
D[O09]	TRAPEZOIDAL DISTORTION	-032 — +032	+009
D[O10]	HORIZONTAL ARC DISTORTION	-032 — +032	000
D[O11]	VERTICAL LINEARITY (S CORRECTION)	-016 — +016	000
D[O12]	VERTICAL LINEARITY (C CORRECTION)	-016 — +016	+003
DP [1035/60i-UNDER]			
D[P01]	HORIZONTAL SIZE	-064 — +064	-013
D[P02]	VERTICAL SIZE	-064 — +064	-030
D[P03]	HORIZONTAL POSITION	-064 — +064	000
D[P04]	VERTICAL POSITION	-064 — +064	-002
D[P05]	SIDE PIN DISTORTION	-032 — +032	000
D[P06]	CORNER DISTORTION (W)	-032 — +032	000
D[P07]	CORNER DISTORTION (S)	-032 — +032	000
D[P08]	PARALLELOGRAM DISTORTION	-032 — +032	000
D[P09]	TRAPEZOIDAL DISTORTION	-032 — +032	000
D[P10]	HORIZONTAL ARC DISTORTION	-032 — +032	000
D[P11]	VERTICAL LINEARITY (S CORRECTION)	-016 — +016	000
D[P12]	VERTICAL LINEARITY (C CORRECTION)	-016 — +016	000
DQ [1080/50i]			
D[Q01]	HORIZONTAL SIZE	-064 — +064	-020
D[Q02]	VERTICAL SIZE	-064 — +064	+033
D[Q03]	HORIZONTAL POSITION	-064 — +064	+033

Adjustment Item	Function	Variable range	Reference value
D[Q04]	VERTICAL POSITION	-064 — +064	-008
D[Q05]	SIDE PIN DISTORTION	-032 — +032	+014
D[Q06]	CORNER DISTORTION (W)	-032 — +032	000
D[Q07]	CORNER DISTORTION (S)	-032 — +032	-004
D[Q08]	PARALLELOGRAM DISTORTION	-032 — +032	+002
D[Q09]	TRAPEZOIDAL DISTORTION	-032 — +032	+003
D[Q10]	HORIZONTAL ARC DISTORTION	-032 — +032	000
D[Q11]	VERTICAL LINEARITY (S CORRECTION)	-016 — +016	000
D[Q12]	VERTICAL LINEARITY (C CORRECTION)	-016 — +016	000
DR [1080/50i-UNDER]			
D[R01]	HORIZONTAL SIZE	-064 — +064	-012
D[R02]	VERTICAL SIZE	-064 — +064	-030
D[R03]	HORIZONTAL POSITION	-064 — +064	000
D[R04]	VERTICAL POSITION	-064 — +064	-002
D[R05]	SIDE PIN DISTORTION	-032 — +032	000
D[R06]	CORNER DISTORTION (W)	-032 — +032	000
D[R07]	CORNER DISTORTION (S)	-032 — +032	000
D[R08]	PARALLELOGRAM DISTORTION	-032 — +032	000
D[R09]	TRAPEZOIDAL DISTORTION	-032 — +032	000
D[R10]	HORIZONTAL ARC DISTORTION	-032 — +032	000
D[R11]	VERTICAL LINEARITY (S CORRECTION)	-016 — +016	000
D[R12]	VERTICAL LINEARITY (C CORRECTION)	-016 — +016	000
DS [1080/24p]			
D[S01]	HORIZONTAL SIZE	-064 — +064	-020
D[S02]	VERTICAL SIZE	-064 — +064	+033
D[S03]	HORIZONTAL POSITION	-064 — +064	+033
D[S04]	VERTICAL POSITION	-064 — +064	-008
D[S05]	SIDE PIN DISTORTION	-032 — +032	+015
D[S06]	CORNER DISTORTION (W)	-032 — +032	-001
D[S07]	CORNER DISTORTION (S)	-032 — +032	-002
D[S08]	PARALLELOGRAM DISTORTION	-032 — +032	+001
D[S09]	TRAPEZOIDAL DISTORTION	-032 — +032	+003
D[S10]	HORIZONTAL ARC DISTORTION	-032 — +032	000
D[S11]	VERTICAL LINEARITY (S CORRECTION)	-016 — +016	000
D[S12]	VERTICAL LINEARITY (C CORRECTION)	-016 — +016	000
DT [1080/24p-UNDER]			
D[T01]	HORIZONTAL SIZE	-064 — +064	-012
D[T02]	VERTICAL SIZE	-064 — +064	-030
D[T03]	HORIZONTAL POSITION	-064 — +064	000
D[T04]	VERTICAL POSITION	-064 — +064	-002
D[T05]	SIDE PIN DISTORTION	-032 — +032	000
D[T06]	CORNER DISTORTION (W)	-032 — +032	000

Adjustment Item	Function	Variable range	Reference value
D[T07]	CORNER DISTORTION (S)	-032 — +032	000
D[T08]	PARALLELOGRAM DISTORTION	-032 — +032	000
D[T09]	TRAPEZOIDAL DISTORTION	-032 — +032	000
D[T10]	HORIZONTAL ARC DISTORTION	-032 — +032	000
D[T11]	VERTICAL LINEARITY (S CORRECTION)	-016 — +016	000
D[T12]	VERTICAL LINEARITY (C CORRECTION)	-016 — +016	000
DU [720/60p]			
D[U01]	HORIZONTAL SIZE	-064 — +064	+030
D[U02]	VERTICAL SIZE	-064 — +064	+035
D[U03]	HORIZONTAL POSITION	-064 — +064	+012
D[U04]	VERTICAL POSITION	-064 — +064	-012
D[U05]	SIDE PIN DISTORTION	-032 — +032	+009
D[U06]	CORNER DISTORTION (W)	-032 — +032	000
D[U07]	CORNER DISTORTION (S)	-032 — +032	-003
D[U08]	PARALLELOGRAM DISTORTION	-032 — +032	+002
D[U09]	TRAPEZOIDAL DISTORTION	-032 — +032	+002
D[U10]	HORIZONTAL ARC DISTORTION	-032 — +032	000
D[U11]	VERTICAL LINEARITY (S CORRECTION)	-016 — +016	000
D[U12]	VERTICAL LINEARITY (C CORRECTION)	-016 — +016	000
DV [720/60p-UNDER]			
D[V01]	HORIZONTAL SIZE	-064 — +064	-019
D[V02]	VERTICAL SIZE	-064 — +064	-030
D[V03]	HORIZONTAL POSITION	-064 — +064	000
D[V04]	VERTICAL POSITION	-064 — +064	-002
D[V05]	SIDE PIN DISTORTION	-032 — +032	000
D[V06]	CORNER DISTORTION (W)	-032 — +032	000
D[V07]	CORNER DISTORTION (S)	-032 — +032	000
D[V08]	PARALLELOGRAM DISTORTION	-032 — +032	000
D[V09]	TRAPEZOIDAL DISTORTION	-032 — +032	000
D[V10]	HORIZONTAL ARC DISTORTION	-032 — +032	000
D[V11]	VERTICAL LINEARITY (S CORRECTION)	-016 — +016	000
D[V12]	VERTICAL LINEARITY (C CORRECTION)	-016 — +016	000
DW [ASPECT]			
D[W01]	NTSC OVERSCAN VERTICAL SIDE	-064 — +064	-008
D[W02]	NTSC OVERSCAN VERTICAL POSITION	-064 — +064	-002
D[W03]	NTSC OVERSCAN SIDE PIN DISTORTION	-032 — +032	+008
D[W04]	NTSC UNDERSCAN VERTICAL SIZE	-064 — +064	-008
D[W05]	NTSC UNDERSCAN VERTICAL POSITION	-064 — +064	-002
D[W06]	NTSC UNDERSCAN SIDE PIN DISTORTION	-032 — +032	+008
D[W07]	PAL OVERSCAN VERTICAL SIDE	-064 — +064	-004
D[W08]	PAL OVERSCAN VERTICAL POSITION	-064 — +064	-002
D[W09]	PAL OVERSCAN SIDE PIN DISTORTION	-032 — +032	+008

Adjustment Item	Function	Variable range	Reference value
D[W10]	PAL UNDERSCAN VERTICAL SIZE	-064 — +064	-008
D[W11]	PAL UNDERSCAN VERTICAL POSITION	-064 — +064	-004
D[W12]	PAL UNDERSCAN SIDE PIN DISTORTION	-032 — +032	+008
D[W13]	480i OVERSCAN VERTICAL SIZE	-064 — +064	-010
D[W14]	480i OVERSCAN VERTICAL POSITION	-064 — +064	-002
D[W15]	480i OVERSCAN SIDE PIN DISTORTION	-032 — +032	+008
D[W16]	480i UNDERSCAN VERTICAL SIZE	-064 — +064	-008
D[W17]	480i UNDERSCAN VERTICAL POSITION	-064 — +064	-002
D[W18]	480i UNDERSCAN SIDE PIN DISTORTION	-032 — +032	+008
D[W19]	576i OVERSCAN VERTICAL SIZE	-064 — +064	-010
D[W20]	576i OVERSCAN VERTICAL POSITION	-064 — +064	-002
D[W21]	576i OVERSCAN SIDE PIN DISTORTION	-032 — +032	+008
D[W22]	576i UNDERSCAN VERTICAL SIZE	-064 — +064	-008
D[W23]	576i UNDERSCAN VERTICAL POSITION	-064 — +064	-002
D[W24]	576i UNDERSCAN SIDE PIN DISTORTION	-032 — +032	+008
D[W25]	480p OVERSCAN VERTICAL SIZE	-064 — +064	-003
D[W26]	480p OVERSCAN VERTICAL POSITION	-064 — +064	-003
D[W27]	480p OVERSCAN SIDE PIN DISTORTION	-032 — +032	+011
D[W28]	480p UNDERSCAN VERTICAL SIZE	-064 — +064	-010
D[W29]	480p UNDERSCAN VERTICAL POSITION	-064 — +064	-003
D[W30]	480p UNDERSCAN SIDE PIN DISTORTION	-032 — +032	+011
D[W31]	576p OVERSCAN VERTICAL SIZE	-064 — +064	-003
D[W32]	576p OVERSCAN VERTICAL POSITION	-064 — +064	000
D[W33]	576p OVERSCAN SIDE PIN DISTORTION	-032 — +032	+011
D[W34]	576p UNDERSCAN VERTICAL SIZE	-064 — +064	-007
D[W35]	576p UNDERSCAN VERTICAL POSITION	-064 — +064	000
D[W36]	576p UNDERSCAN SIDE PIN DISTORTION	-032 — +032	+012
DX [V.LIN/FOCUS]			
D[X01]	45 — 55Hz VERTICAL LINEARITY (S CORRECTION)	-016 — +016	+011
D[X02]	45 — 55Hz VERTICAL LINEARITY (C CORRECTION)	-016 — +016	+003
D[X03]	45 — 55Hz FOCUS (PARABOLA)	-032 — +032	000
D[X04]	55 — 65Hz VERTICAL LINEARITY (S CORRECTION)	-016 — +016	+011
D[X05]	55 — 65Hz VERTICAL LINEARITY (C CORRECTION)	-016 — +016	+003
D[X06]	55 — 65Hz FOCUS (PARABOLA)	-032 — +032	000
D[X07]	SPARE (S CORRECTION)	-016 — +016	000
D[X08]	SPARE (C CORRECTION)	-016 — +016	000
D[X09]	SPARE (PARABOLA)	-032 — +032	000
DY [ROTATION/PURITY]			
D[Y01]	ROTATION	-032 — +031	+015
D[Y02]	PURITY	-128 — +127	000

Adjustment Item	Function	Variable range	Reference value
DZ [COMMON] * When the value of item DZ is changed, items DA to DV should be re-adjusted.			
D[Z01]	HORIZONTAL SIZE	000 — 127	063
D[Z02]	VERTICAL SIZE	000 — 127	063
D[Z03]	HORIZONTAL POSITION	000 — 127	063
D[Z04]	VERTICAL POSITION	000 — 127	080
D[Z05]	SIDE PIN DISTORTION	000 — 063	031
D[Z06]	CORNER DISTORTION (W)	000 — 063	031
D[Z07]	CORNER DISTORTION (S)	000 — 063	031
D[Z08]	PARALLELOGRAM DISTORTION	000 — 063	031
D[Z09]	TRAPEZOIDAL DISTORTION	000 — 063	031
D[Z10]	HORIZONTAL ARC DISTORTION	000 — 063	031
D[Z11]	VERTICAL LINEARITY (S CORRECTION)	000 — 031	016
D[Z12]	VERTICAL LINEARITY (C CORRECTION)	000 — 031	016
D[Z13]	VERTICAL MAX SIZE CONTROL	000 — 031	016
D[Z14]	FOCUS (PHASE)	000 — 063	022
D[Z15]	FOCUS (PARABOLA)	000 — 063	044

■ CPU BLOCK

Adjustment Item	Function	Variable range	Reference value
CC [SETTING]			
C[C41]		000 — 003	000
CE [OSD etc]			
C[E05]	NTSC, 480/60i CORNER DISTORTION (W)	-032 — +032	000
C[E06]	NTSC, 480/60i CORNER DISTORTION (S)	-032 — +032	+002
C[E07]	NTSC, 480/60i PARALLELOGRAM DISTORTION	-032 — +032	000
C[E08]	NTSC, 480/60i TRAPEZOIDAL DISTORTION	-032 — +032	-002
C[E09]	NTSC, 480/60i HORIZONTAL ARC DISTORTION	-032 — +032	000
C[E010]	PAL, 576/50i CORNER DISTORTION (W)	-032 — +032	+003
C[E011]	NTSC, 480/60i CORNER DISTORTION (S)	-032 — +032	000
C[E012]	NTSC, 480/60i PARALLELOGRAM DISTORTION	-032 — +032	000
C[E013]	NTSC, 480/60i TRAPEZOIDAL DISTORTION	-032 — +032	-004
C[E014]	480/60p HORIZONTAL ARC DISTORTION	-032 — +032	000
C[E015]	480/60p CORNER DISTORTION (W)	-032 — +032	000
C[E016]	480/60p CORNER DISTORTION (S)	-032 — +032	+002
C[E017]	480/60p PARALLELOGRAM DISTORTION	-032 — +032	000
C[E018]	480/60p TRAPEZOIDAL DISTORTION	-032 — +032	-005
C[E019]	480/60p HORIZONTAL ARC DISTORTION	-032 — +032	000

ADJUSTMENT PROCEDURES

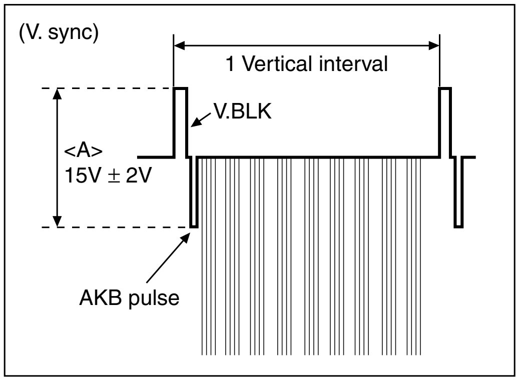
SCREEN VOLTAGE ADJUSTMENT AND FOCUSING COARSE ADJUSTMENT

SCREEN VOLTAGE ADJUSTMENT AND FOCUSING COARSE ADJUSTMENT

Measuring Instruments	**Signal generator (All-black signal, Crosshatch signal)** **Oscilloscope**
Card (Slot)	**Component/RGB Input Card (Slot 1)**
Test Points	**TP-47B, TP-47R, TP-47G [CRT SOCKET PWB]** **TP-GND [CRT SOCKET PWB]**
Adjustment Points	**SCREEN VR [Bottom potentiometer on high-voltage transformer]** **FOCUS VR1 [Top potentiometer on high-voltage transformer]** **FOCUS VR2 [Middle potentiometer on high-voltage transformer]** **CC41 (AKB Setting) [Service Menu]**

Note: Ensure that the value of CC41 (CPU BLOCK) in the Service Menu is "000".

1. Turn the **SCREEN VR** fully counterclockwise.
2. Connect the oscilloscope across TP-47B and TP-GND and turn the unit ON.
3. Apply the 1080/60i component all-black signal to INPUT A.
4. Turn the **SCREEN VR** slowly clockwise until the raster lights up slightly.
5. Set the value of **CC41 (CPU BLOCK)** in the Service Menu from "000" to "003".
6. Turn the **SCREEN VR** slowly clockwise until the voltage amplitude <A> of the AKB pulse at TP-47B is about **15 V**.
7. Observe the waveforms at TP-47R and TP-47G to ensure that the V.BLK pulse is present.
   If V.BLK is not clear, adjust the **SCREEN VR** so that the voltage amplitude <A> of the AKB pulse at TP-47R and TP-47G becomes **15 ± 2 V**.
8. Apply the 1080/60i crosshatch signal to INPUT A.
9. Adjust the **FOCUS VR1** and **VR2** so that the entire image is in focus.



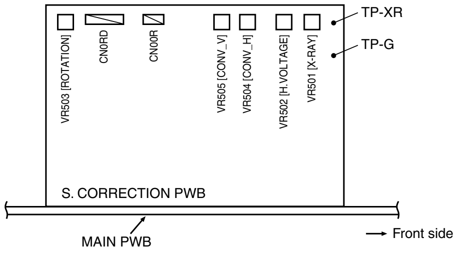
HIGH-VOLTAGE COARSE ADJUSTMENT

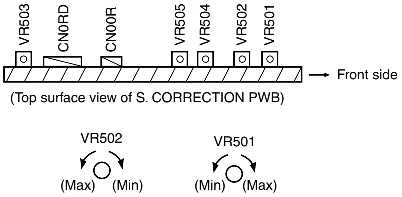
HIGH-VOLTAGE COARSE ADJUSTMENT

Measuring Instruments	**Signal generator (Crosshatch signal)** **High-voltage voltmeter**
Card (Slot)	**Component/RGB Input Card (Slot 1)**
Test Points	**Anode of CRT**
Adjustment Points	**VR502 (High-Voltage VR) [S. CORRECTION PWB]** **FOCUS VR1 [Top potentiometer on high-voltage transformer]** **FOCUS VR2 [Middle potentiometer on high-voltage transformer]**

Note: Perform the following adjustments after completing the Screen Voltage and Focusing Coarse adjustments.

1. Turn **VR502** fully clockwise (the minimum position).
2. Turn **VR501** fully counterclockwise (the minimum position).
3. Connect the high-voltage voltmeter to the anode of the CRT and turn the unit ON.
4. Apply the 1080/60i crosshatch signal to INPUT A (Terminal Y on the Component/RGB Input Card).
5. Turn **VR502** slowly counterclockwise until the value of the high voltage is about **25 kV**.
6. Adjust the **FOCUS VR1** and **VR2** so that the entire image is in focus.





(Top surface view of S. CORRECTION PWB)

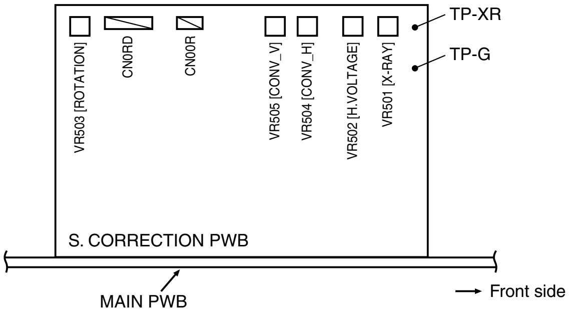
X-RAY PROTECTOR ADJUSTMENT/CHECK

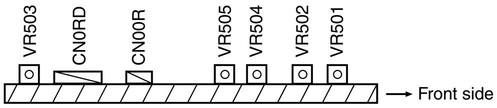
X-RAY PROTECTOR ADJUSTMENT/CHECK

Measuring Instruments	**Signal generator (All-white signal)** **High-voltage voltmeter** **DC voltmeter**
Card (Slot)	**Component/RGB Input Card (Slot 1)**
Test Points	**Anode of CRT** **TP-XR, TP-GND [S. CORRECTION PWB]**
Adjustment Points	**VR501 (X-Ray Protector Adjustment VR) [S. CORRECTION PWB]** **VR502 (High-Voltage VR) [S. CORRECTION PWB]**

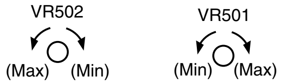
Note: Perform the following adjustment after completing the Screen Voltage adjustment.

1. Turn the **VR502** fully clockwise (the minimum position).
2. Turn the **VR501** fully counterclockwise (the minimum position).
3. Set the CONTRAST and BRIGHT potentiometers on the front panel to the fully clockwise positions.
4. Connect the high-voltage voltmeter to the anode of the CRT and turn the unit ON.
5. Apply the 1080/60i all-white signal to INPUT A (Terminal Y on the Component/RGB Input Card).
6. Turn the **VR502** slowly counterclockwise until the value of the high-voltage voltmeter is **27.0 kV ± 0.2 kV**.
7. Connect the DC voltmeter across TP-XR and TP-GND.
8. Turn the **VR501** clockwise until the voltmeter reading is **5.5 V**.
9. Turn the **VR501** slowly clockwise until the point at which the X-ray protector starts operation.
   (The INPUT SELECT D LED on the front panel should blink.)
10. Turn the **VR502** slightly clockwise and turn the unit ON again.
11. Turn the **VR502** slowly counterclockwise and check the point at which the X-ray protector starts to operate.
    Check that the high-voltage voltmeter value at which the X-ray protector starts to operate, is **27.0 kV ± 0.2 kV**.
12. Apply adhesive for fixing the **VR501** in the adjusted position.
13. Set the CONTRAST and BRIGHT potentiometers on the front panel to the center click positions.


TP-XR
TP-G
VR503 [ROTATION]
CN0RD
CN00R
VR505 [CONV_V]
VR504 [CONV_H]
VR502 [H.VOLTAGE]
VR501 [X-RAY]
S. CORRECTION PWB
MAIN PWB
Front side


VR503
CN0RD
CN00R
VR505
VR504
VR502
VR501
Front side

(Top surface view of the S. CORRECTION PWB)


VR502
(Max)
(Min)
VR501
(Min)
(Max)

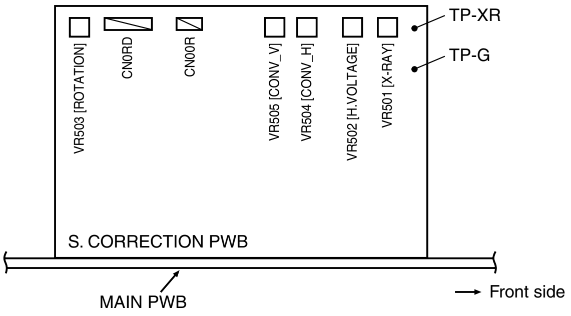
HIGH-VOLTAGE ADJUSTMENT

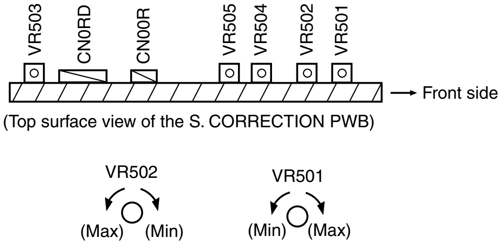
HIGH-VOLTAGE ADJUSTMENT

Measuring Instruments	**Signal generator (All-black signal)** **High-voltage voltmeter**
Card (Slot)	**Component/RGB Input Card (Slot 1)**
Test Points	**Anode of CRT**
Adjustment Points	**VR502 (High-Voltage VR) [S. CORRECTION PWB]**

Note: Perform the following adjustments after completing the Screen Voltage and X-Ray Protector adjustments.

1. Turn the **VR502** fully clockwise.
2. Connect the high-voltage voltmeter to the anode of the CRT and turn the unit ON.
3. Apply the 1080/60i all-black signal to INPUT A (Terminal Y on the Component/RGB Input Card).
4. If the raster is visible, adjust the BRIGHT potentiometer on the front panel to turn the screen all black.
5. Turn **VR502** slowly counterclockwise until the value of the high voltage is **25 kV ± 0.2 kV**.
6. Apply adhesive for fixing the **VR502** in the adjusted position.
7. Set the BRIGHT potentiometer on the front panel to the center click position.


VR503 [ROTATION]
CN0RD
CN00R
VR505 [CONV_V]
VR504 [CONV_H]
VR502 [H.VOLTAGE]
VR501 [X-RAY]
TP-XR
TP-G
S. CORRECTION PWB
MAIN PWB
Front side


VR503
CN0RD
CN00R
VR505
VR504
VR502
VR501
Front side
(Top surface view of the S. CORRECTION PWB)
VR502
(Max)
(Min)
VR501
(Min)
(Max)

FOCUSING ADJUSTMENT

FOCUSING ADJUSTMENT

Measuring Instruments	**Signal generator (Character signal)**
Card (Slot)	**Component/RGB Input Card (Slot 1)**
Test Points	
Adjustment Points	**FOCUS VR1 [Top potentiometer on high-voltage transformer]** **FOCUS VR2 [Middle potentiometer on high-voltage transformer]**

Note: Perform the following adjustments after completing the Screen Voltage, X-Ray Protector and High-Voltage adjustments.

1. Apply the 1080/60i character signal to INPUT A (Terminal Y on the Component/RGB Input Card).
2. Set the CONTRAST and BRIGHT potentiometers on the front panel to the center click positions.
3. Adjust the **FOCUS VR1** and **VR2** so that the horizontal and vertical lines in the image are clearly visible.

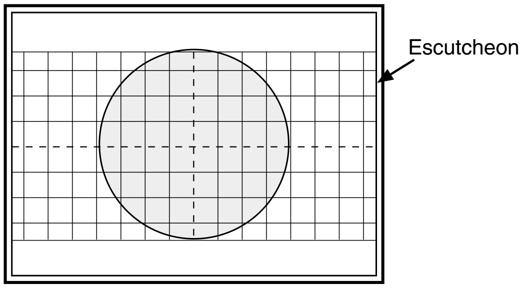
CONVERGENCE ADJUSTMENT

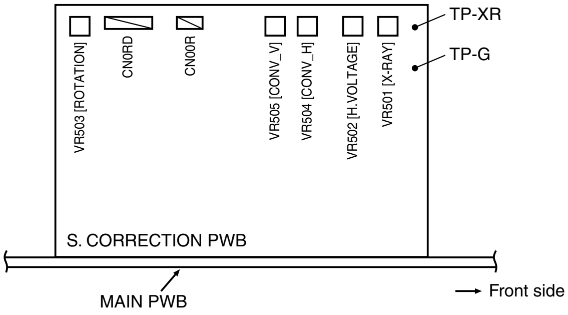
CONVERGENCE ADJUSTMENT

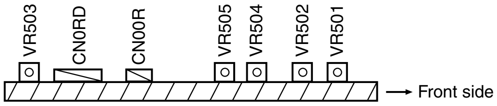
Measuring Instruments	**Signal generator (Crosshatch signal with circle pattern)**
Card (Slot)	**Component/RGB Input Card (Slot 1)**
Test Points	
Adjustment Points	**VR504 (CONV_H) [S. CORRECTION PWB]** **VR505 (CONV_V) [S. CORRECTION PWB]**

Notes: **• Perform the following adjustments after completing the Screen Voltage, X-Ray Protector, High Voltage and Focusing adjustments.**
• Ensure that CN0RD and CN00R on the S. Correction PWB are connected to the Deflection yoke and Main Board.

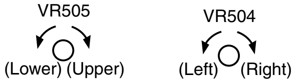
1. Apply the 1080/60i crosshatch signal with circle pattern to INPUT A (Terminal Y on the Component/RGB Input Card).
2. Turn the **VR504** to optimize the horizontal convergence value at the center of the screen (turning the potentiometer counterclockwise shifts BLUE toward the right with respect to RED).
3. Turn the **VR505** to optimize the vertical convergence value at the center of the screen (turning the potentiometer counterclockwise shifts BLUE downward with respect to RED).


Escutcheon


TP-XR
TP-G
VR503 [ROTATION]
CN0RD
CN00R
VR505 [CONV_V]
VR504 [CONV_H]
VR502 [H.VOLTAGE]
VR501 [X-RAY]
S. CORRECTION PWB
MAIN PWB
Front side


VR503
CN0RD
CN00R
VR505
VR504
VR502
VR501
Front side

(Top surface view of S. CORRECTION PWB)


VR505
(Lower) (Upper)
VR504
(Left) (Right)

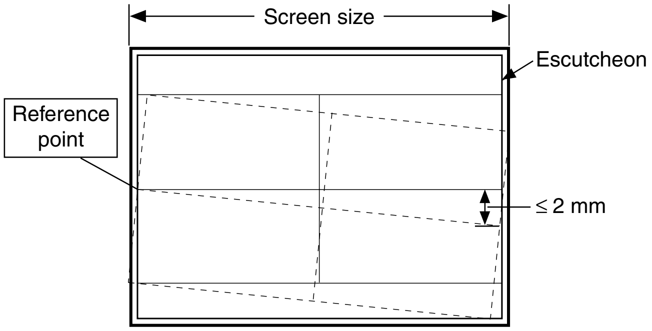
FRONT ROTATION ADJUSTMENT

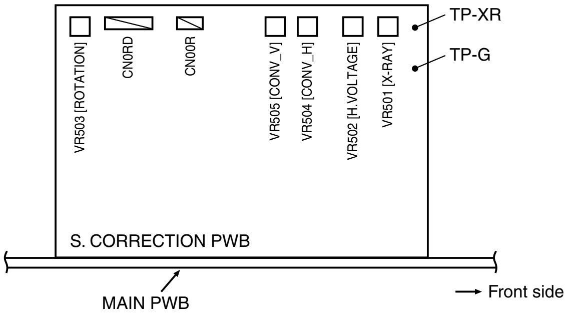
FRONT ROTATION ADJUSTMENT

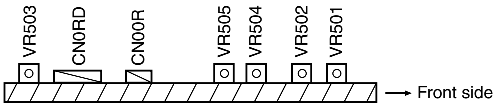
Measuring Instruments	**Signal generator (Size adjustment signal)**
Card (Slot)	**Component/RGB Input Card (Slot 1)**
Test Points	
Adjustment Points	**DY01 (Rotation), DM04 (Vertical Position) [Service Menu]** **VR503 (ROTATION) [S. CORRECTION PWB]**

Notes:
- **Perform the following adjustments after completing the Screen Voltage, High-Voltage, Focusing and X-Ray Protector adjustments.**
- **Ensure that CN0RD and CN00R on the S. Correction PWB are connected to the Deflection Yoke and Main PWB.**
- **If the S. Correction PWB has VR503 on it, adjust the image tilting by turning VR503 instead of using the remote control cord (DY01).**

1. Apply the 1080/60i size adjustment signal to INPUT A (Terminal Y on the Component/RGB Input Card).
2. Adjust **DY01** of the Service Menu to decrease the image tilting to no more than **2 mm**. If the reference point which is the vertical center position on the left of the image (reference points) is deviated, adjust **DM04** to correct it.


Screen size
Escutcheon
Reference point
≤ 2 mm


TP-XR
TP-G
VR503 [ROTATION]
CN0RD
CN00R
VR505 [CONV_V]
VR504 [CONV_H]
VR502 [H.VOLTAGE]
VR501 [X-RAY]
S. CORRECTION PWB
MAIN PWB
Front side


VR503
CN0RD
CN00R
VR505
VR504
VR502
VR501
Front side

(Top surface view of S. CORRECTION PWB)

SIGNAL CONTRAST ADJUSTMENTS

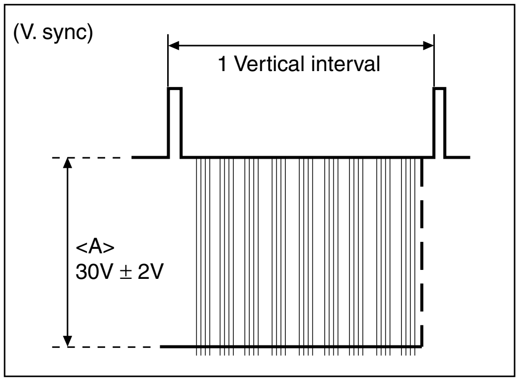
CONTRAST ADJUSTMENT (HDTV)

Measuring Instruments	**Signal generator (Crosshatch signal)** **Oscilloscope**
Card (Slot)	**Component/RGB Input Card (Slot 1)**
Test Points	**TP-47G [CRT SOCKET PWB]** **TP-GND [CRT SOCKET PWB]**
Adjustment Points	**S*01 (Overscan Contrast), SM** (Underscan Contrast) [Service Menu]**

Notes:
- **Perform the following adjustments after completing the Screen Voltage adjustment.**
- **Set the CONTRAST data in the Setup Menu to "00".**
- **The value adjusted at the SO adjustment becomes the reference value for the following adjustments. When this data is changed, it is required to re-adjust the data of all of the adjustment signals (HDTV, SDTV and NTSC/PAL). When re-adjusting the 1080/60i signal, use the SI.**
- **When overscan data of a signal is changed, it is required to re-adjust the underscan data of the same adjustment signal.**

— Standard value (SO) adjustment —

1. Apply the 1080/60i crosshatch signal to INPUT A (Terminal Y on the Component/RGB Input Card).
2. Set the CONTRAST potentiometer on the front panel to the center click position.
3. Connect the oscilloscope across TP-47G and TP-GND.
4. Adjust **SO01** in the Service Menu to set the voltage amplitude <A> in the figure on the right to **30 V ± 2 V**.



— Other signals adjustments —

5. Apply the 1080/60i crosshatch signal to INPUT A (Terminal Y on the Component/RGB Input Card).
6. Set the CONTRAST potentiometer on the front panel to the center click position.
7. Connect the oscilloscope across TP-47G and TP-GND.
8. Adjust **SI01** in the Service Menu to set the voltage amplitude <A> in the figure on the right to **30 V ± 2 V**.
9. Set the UNDER SCAN button on the front panel to ON so that the scanning size is set to underscanning.
10. Adjust **SM25** to set the voltage amplitude <A> to **30 V ± 2 V**.
11. Press the UNDER SCAN button on the front panel to set the underscan to OFF.
12. Vary the adjustment signal and adjustment data, and re-perform adjustments in steps 5 to 11 above (see Table 1).

Adjustment Signal	Scanning Size	Adjustment Data
COMMON	Overscan	SO01
	Underscan	—
1080/60i	Overscan	SI01
	Underscan	SM25
1080/24pSF	Overscan	SJ01
	Underscan	SM28
720/60p	Overscan	SK01
	Underscan	SM31

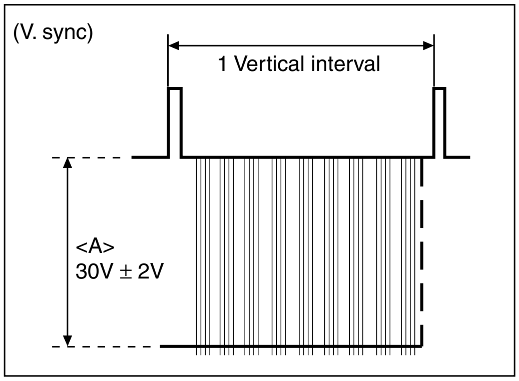
Table 1

CONTRAST ADJUSTMENT (SDTV)

Measuring Instruments	**Signal generator (Crosshatch signal)** **Oscilloscope**
Card (Slot)	**Component/RGB Input Card (Slot 1)**
Test Points	**TP-47G [CRT SOCKET PWB]** **TP-GND [CRT SOCKET PWB]**
Adjustment Points	**S*01 (4:3 Overscan Contrast), SM** (4:3 Underscan Contrast),** **SN** (16:9 Overscan/Underscan Contrast) [Service Menu]**

Notes:
- **Perform the following adjustments after completing the 1080/60i signal Contrast adjustment.**
- **Set the CONTRAST data in the Setup Menu to "00".**
- **The SO value (see the description of the HDTV Contrast Adjustment) becomes the reference value for the following adjustments. When this data is changed, it is required to re-adjust the data of all of the adjustment signals (HDTV, SDTV and NTSC/PAL).**
  When re-adjusting the 1080/60i signal, use the SI.
- **When overscan data of a signal is changed, it is required to re-adjust the underscan data of the same adjustment signal.**
- **When the 4:3 data of a signal is changed, it is required to re-adjust the 16:9 data of the same adjustment signal.**

1. Apply the 480/60i crosshatch signal to INPUT A (Terminal Y on the Component/RGB Input Card).
2. Set the CONTRAST potentiometer on the front panel to the center click position.
3. Connect the oscilloscope across TP-47G and TP-GND.
4. Adjust **SE01** in the Service Menu to set the voltage amplitude <A> in the figure on the right to **30 V ± 2 V**.
5. Set the ASPECT button on the front panel to ON so that the scanning size is 16:9.
6. Adjust **SN25** to set the voltage amplitude <A> to **30 V ± 2 V**.
7. Set the ASPECT button on the front panel to OFF and the UNDER SCAN button to ON to set the scanning size to underscanning for the 4:3 ratio.
8. Adjust **SM13** to set the voltage amplitude <A> to **30 V ± 2 V**.
9. Set the ASPECT button on the front panel to ON to set the scanning size to underscanning for the 16:9 ratio.
10. Adjust **SN28** to set the voltage amplitude <A> to **30 V ± 2 V**.
11. Set the ASPECT and UNDER SCAN buttons on the front panel to OFF.
12. Vary the adjustment signal and adjustment data, and re-perform adjustments in steps 1 to 11 above (see Table 2).



Adjustment Signal	**Scanning Size**	**Aspect Ratio**	
		4 : 3	**16 : 9**
480/60i	Overscan	SE01	SN25
	Underscan	SM13	SN28
576/50i	Overscan	SF01	SN31
	Underscan	SM16	SN34
480/60p	Overscan	SG01	SN37
	Underscan	SM19	SN40

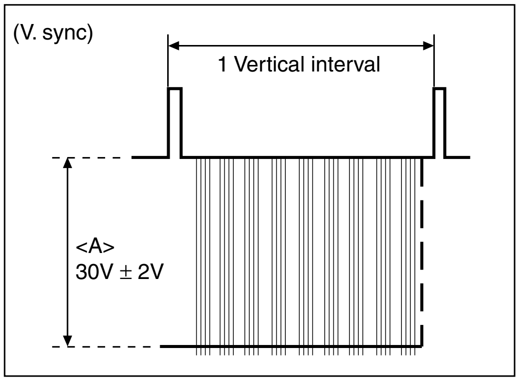
Table 2

CONTRAST ADJUSTMENT (NTSC/PAL VIDEO)

Measuring Instruments	**Signal generator (Crosshatch signal)** **Oscilloscope**
Card (Slot)	**NTSC/PAL Video Input Card (Slot 2)**
Test Points	**TP-47G [CRT SOCKET PWB]** **TP-GND [CRT SOCKET PWB]**
Adjustment Points	**S*01 (4:3 Overscan Contrast), SM** (4:3 Underscan Contrast),** **SN** (16:9 Overscan/Underscan Contrast) [Service Menu]**

Notes:
- **Ensure that the output waveforms from the NTSC/PAL Video Input Cards are normal before proceeding to the following adjustments (see page 72).**
- **Perform the following adjustments after completing the 1080/60i signal Contrast Adjustment.**
- **Set the CONTRAST data in the Setup Menu to "00".**
- **The SO value (see the description of the HDTV Contrast Adjustment) becomes the reference value for the following adjustments. When this data is changed, it is required to re-adjust the data of all of the adjustment signals (HDTV, SDTV and NTSC/PAL).**

  When re-adjusting the 1080/60i signal, use the SI. (For the adjustment of the 1080/60i signal, use the Component/RGB Input Card.)
- **When overscan data of a signal is changed, it is required to re-adjust the underscan data of the same adjustment signal.**
- **When the 4:3 data of a signal is changed, it is required to re-adjust the 16:9 data of the same adjustment signal.**



1. Apply the NTSC crosshatch signal to INPUT C (Terminal VIDEO1 on the NTSC/PAL Video Input Card).
2. Set the CONTRAST potentiometer on the front panel to the center click position.
3. Connect the oscilloscope across TP-47G and TP-GND.
4. Adjust **SA01** in the Service Menu to set the voltage amplitude <A> in the figure on the right to **30 V ± 2 V**.
5. Set the ASPECT button on the front panel to ON so that the scanning size is 16:9.
6. Adjust **SN01** to set the voltage amplitude <A> to **30 V ± 2 V**.
7. Set the ASPECT button on the front panel to OFF and the UNDER SCAN button to ON to set the scanning size to underscanning for the 4:3 ratio.
8. Adjust **SM01** to set the voltage amplitude <A> to **30 V ± 2 V**.
9. Set the ASPECT button on the front panel to ON to set the scanning size to underscanning for the 16:9 ratio.
10. Adjust **SN04** to set the voltage amplitude <A> to **30 V ± 2 V**.
11. Set the ASPECT and UNDER SCAN buttons on the front panel to OFF.
12. Vary the adjustment signal and adjustment data, and re-perform adjustments in steps 1 to 11 above (see Table 3).

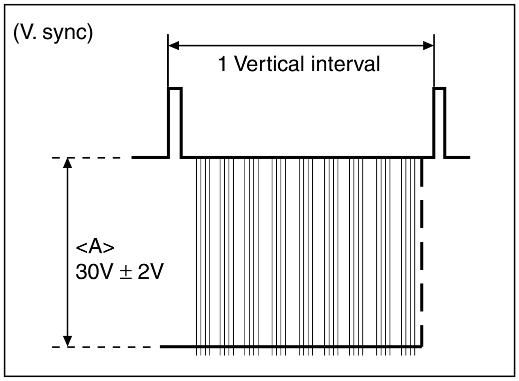
Adjustment Signal	**Scanning Size**	**Aspect Ratio**	
		4 : 3	**16 : 9**
NTSC (VIDEO)	Overscan	SA01	SN01
	Underscan	SM01	SN04
PAL (VIDEO)	Overscan	SC01	SN13
	Underscan	SM07	SN16

Table 3

CONTRAST ADJUSTMENT (NTSC/PAL Y/C)

Measuring Instruments	**Signal generator (Crosshatch signal)** **Oscilloscope**
Card (Slot)	**NTSC/PAL Video Input Card (Slot 2)**
Test Points	**TP-47G [CRT SOCKET PWB]** **TP-GND [CRT SOCKET PWB]**
Adjustment Points	**S*01 (4:3 Overscan Contrast), SM** (4:3 Underscan Contrast),** **SN** (16:9 Overscan/Underscan Contrast) [Service Menu]**

Notes:
- **Ensure that the output waveforms from the NTSC/PAL Video Input Cards are normal before proceeding to the following adjustments (see page 72).**
- **Perform the following adjustments after completing the 1080/60i signal Contrast Adjustment.**
- **Set the CONTRAST data in the Setup Menu to "00".**
- **The SO value (see the description of the HDTV Contrast Adjustment) becomes the reference value for the following adjustments. When this data is changed, it is required to re-adjust the data of all of the adjustment signals (HDTV, SDTV and NTSC/PAL).**
  When re-adjusting the 1080/60i signal, use the SI. (For the adjustment of the 1080/60i signal, use the Component/RGB Input Card.)
- **When overscan data of a signal is changed, it is required to re-adjust the underscan data of the same adjustment signal.**
- **When the 4:3 data of a signal is changed, it is required to re-adjust the 16:9 data of the same adjustment signal.**



1. Apply the NTSC crosshatch signal to INPUT D (Terminal Y/C on the NTSC/PAL Video Input Card).
2. Set the CONTRAST potentiometer on the front panel to the center click position.
3. Connect the oscilloscope across TP-47G and TP-GND.
4. Adjust **SB01** in the Service Menu to set the voltage amplitude <A> in the figure on the right to **30 V ± 2 V**.
5. Set the ASPECT button on the front panel to ON so that the scanning size is 16:9.
6. Adjust **SN07** to set the voltage amplitude <A> to **30 V ± 2 V**.
7. Set the ASPECT button on the front panel to OFF and the UNDER SCAN button to ON to set the scanning size to underscanning for the 4:3 ratio.
8. Adjust **SM04** to set the voltage amplitude <A> to **30 V ± 2 V**.
9. Set the ASPECT button on the front panel to ON to set the scanning size to underscanning for the 16:9 ratio.
10. Adjust **SN10** to set the voltage amplitude <A> to **30 V ± 2 V**.
11. Set the ASPECT and UNDER SCAN buttons on the front panel to OFF.
12. Vary the adjustment signal and adjustment data, and re-perform adjustments in steps 1 to 11 above (see Table 4).

Adjustment Signal	Scanning Size	Aspect Ratio	
		4 : 3	16 : 9
NTSC (Y/C)	Overscan	SB01	SN07
	Underscan	SM04	SN10
PAL (Y/C)	Overscan	SD01	SN19
	Underscan	SM10	SN22

Table 4

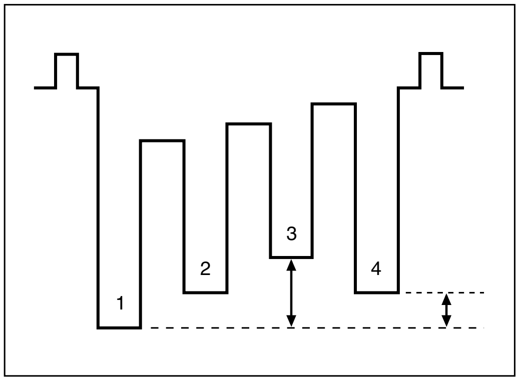
SIGNAL CHROMA/PHASE ADJUSTMENTS

CHROMA/PHASE ADJUSTMENTS (COMPONENT)

Measuring Instruments	**Signal generator (Component color bar signal)** **Oscilloscope**
Card (Slot)	**Component/RGB Input Card (Slot 1)**
Test Points	**TP-47B [CRT SOCKET PWB]** **TP-GND [CRT SOCKET PWB]**
Adjustment Points	**S*03 (Chroma), S*04 (Phase) [Service Menu]**

Notes:
- **Perform the following adjustments after completing the Contrast adjustment.**
- **Set the CHROMA and PHASE data in the Setup Menu to “00”.**
- **The value adjusted at the SO adjustment becomes the reference value for the following adjustments. When this data is changed, it is required to re-adjust the data of all of the adjustment signals (Component, NTSC and PAL). When re-adjusting the 1080/60i signal, use the SI.**

1. Apply the 1080/60i component color bar signal to INPUT A.
2. Set the CHROMA and PHASE potentiometers on the front panel to the center click positions.
3. Connect the oscilloscope across TP-47B and TP-GND.
4. Adjust **SO03** in the Service Menu to set the level difference between waveforms 1 and 4 in the figure on the right to **0 V ± 2 V**.
5. Adjust **SO04** to set the level difference between 1 and 3 to **0 V ± 2 V**.
6. Vary the adjustment signal and adjustment data, and re-perform adjustments in steps 1 to 5 above (see Table 5).



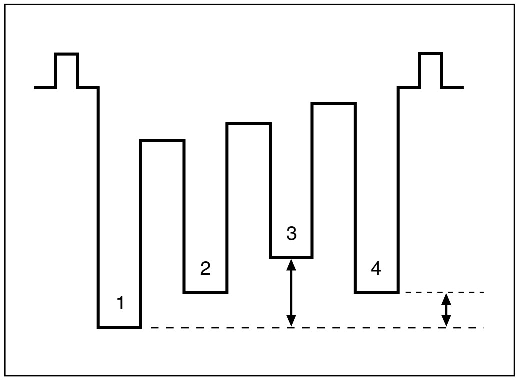
Adjustment Signal	Adjustment Data	
	Chroma	Phase
COMMON	SO03	SO04
1080/60i	SI03	SI04
1080/24psf	SJ03	SJ04
720/60p	SK03	SK04
480/60i	SE03	SE04
576/50i	SF03	SF04
480/60p	SG03	SG04

Table 5

CHROMA/PHASE ADJUSTMENTS (NTSC)

Measuring Instruments	**Signal generator (NTSC 75% color bar signal)** **Oscilloscope**
Card (Slot)	**NTSC/PAL Video Input Card (Slot 2)**
Test Points	**TP-47B [CRT SOCKET PWB]** **TP-GND [CRT SOCKET PWB]**
Adjustment Points	**S*03 (Chroma), S*04 (Phase) [Service Menu]**

Notes:
- **Ensure that the output waveforms from the NTSC/PAL Video Input Cards are normal before proceeding to the following adjustments (see page 72).**
- **Perform the following adjustments after completing the 1080/60i signal Chroma/Phase Adjustments.**
- **Set the CHROMA and PHASE data in the Setup Menu to "00".**
- **The SO value (see the description of the Component Signal Chroma/Phase Adjustments) becomes the reference value for the following adjustments. When this data is changed, it is required to re-adjust the data of all of the adjustment signals (Component, NTSC and PAL).**
  When re-adjusting the 1080/60i signal, use the SI. (For the adjustment of the 1080/60i signal, use the Component/RGB Input Card.)



1. Apply the NTSC color bar signal to INPUT C (Terminal VIDEO1 on the NTSC/PAL Video Input Card).
2. Set the CHROMA and PHASE potentiometers on the front panel to the center click positions.
3. Connect the oscilloscope across TP-47B and TP-GND.
4. Adjust **SA03** in the Service Menu to set the level difference between waveforms 1 and 4 in the figure on the right to **0 V ± 2 V**.
5. Adjust **SO04** to set the level difference between 1 and 3 to **0 V ± 2 V**.
6. Apply the NTSC color bar signal to INPUT D (Terminal Y/C on the NTSC/PAL Video Input Card) and perform the adjustments in steps 2 to 5 above. See Table 6 for the adjustment data.

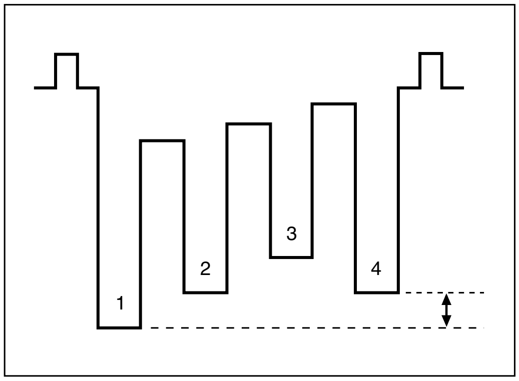
Adjustment Signal	Adjustment Data	
	Chroma	Phase
NTSC (VIDEO)	SA03	SA04
NTSC (Y/C)	SB03	SB04

Table 6

CHROMA ADJUSTMENTS (PAL)

Measuring Instruments	**Signal generator (PAL 75% color bar signal)** **Oscilloscope**
Card (Slot)	**NTSC/PAL Video Input Card (Slot 2)**
Test Points	**TP-47B [CRT SOCKET PWB]** **TP-GND [CRT SOCKET PWB]**
Adjustment Points	**S*03 (Chroma) [Service Menu]**

Notes:
- **Ensure that the output waveforms from the NTSC/PAL Video Input Cards are normal before proceeding to the following adjustments (see page 72).**
- **Perform the following adjustments after completing the 1080/60i signal Chroma/Phase Adjustments.**
- **Set the CHROMA and PHASE data in the Setup Menu to "00".**
- **The SO value (see the description of the Component Signal Chroma/Phase Adjustments) becomes the reference value for the following adjustments. When this data is changed, it is required to re-adjust the data of all of the adjustment signals (Component, NTSC and PAL).**
  When re-adjusting the 1080/60i signal, use the SI. (For the adjustment of the 1080/60i signal, use the Component/RGB Input Card.)



1. Apply the PAL color bar signal to INPUT C (Terminal VIDEO1 on the NTSC/PAL Video Input Card).
2. Set the CHROMA and PHASE potentiometers on the front panel to the center click positions.
3. Connect the oscilloscope across TP-47B and TP-GND.
4. Adjust **SC03** in the Service Menu to set the level difference between waveforms 1 and 4 in the figure on the right to **0 V ± 2 V**.
5. Apply the PAL color bar signal to INPUT D (Terminal Y/C on the NTSC/PAL Video Input Card) and perform the adjustments in steps 2 to 4 above. See Table 7 for the adjustment data.

Adjustment Signal	**Adjustment Data**
	Chroma
PAL (VIDEO)	SC03
PAL (Y/C)	SD03

Table 7

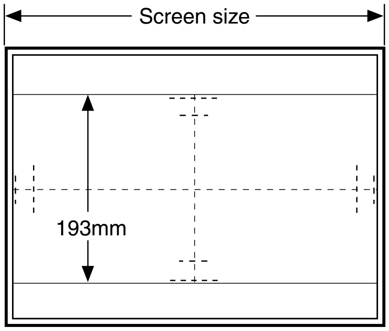
VERTICAL LINEARITY REFERENCE VALUE ADJUSTMENTS

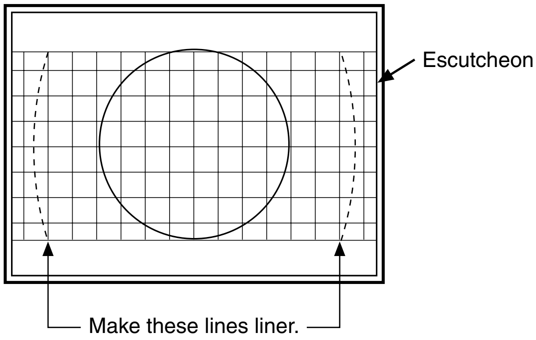
VERTICAL LINEARITY ADJUSTMENT (VERTICAL FREQUENCY: 60Hz)

Measuring Instruments	**Signal generator (Size adjustment signal, Crosshatch signal with circle pattern)**
Card (Slot)	**Component/RGB Input Card (Slot 1)**
Test Points	
Adjustment Points	**DM02 (Vertical Size), DM04 (Vertical Position), DM05 (Side Pin Distortion), DM06 (Corner Distortion (W)), DM07 (Corner Distortion (S)), DM08 (Parallelogram Distortion), DM09 (Trapezoidal Distortion), DM10 (Horizontal Arc Distortion), DX04 (60Hz Vertical Linearity (S Correction)), DX05 (60Hz Vertical Linearity (C Correction)) [Service Menu]**

Note: • **Perform the following adjustments after completing the Screen Voltage, X-Ray Protector and High-Voltage adjustments.**

1. Apply the 1080/60i size adjustment signal to INPUT A (Terminal Y on the Component/RGB Input Card).
2. Adjust **DM04** to set the vertical position of the image at the center of the CRT screen.
3. Adjust **DM02** to set the vertical amplitude of the image to **193mm**.
4. Apply the 1080/60i crosshatch signal with circle pattern to INPUT A.
5. Adjust **DX04** to set the sizes of the rectangles at the center of the image and those at the left and right ends to be identical.
6. Adjust **DX05** to set the sizes of the rectangles at the top and bottom of the image to be identical.
7. Ensure that the center position is not deviated. If it is, adjust **DM04** again.
8. Repeat adjustments in steps 1 to 7 until the center position and vertical linearity become optimum. If the current image distortion is serious, perform adjustments in steps 9 to 13 before re-performing steps 1 to 7.
9. Adjust **DM05** so that the second vertical lines from the left and right edges are linear.
10. Adjust **DM06 (W)** and **DM07 (S)** to optimize the corner distortions.
11. Adjust **DM08** to optimize the parallelogram distortion (observe the second vertical lines from the left and right edges as the reference).
12. Adjust **DM09** to optimize the trapezoidal distortion (observe the second vertical lines from the left and right edges as the reference).
13. Adjust **DM10** to optimize the horizontal arc distortion.



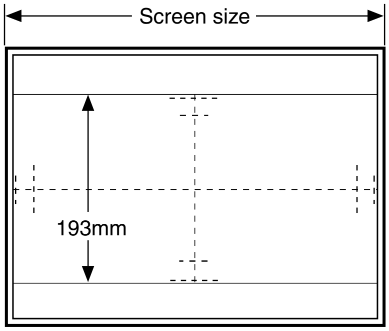


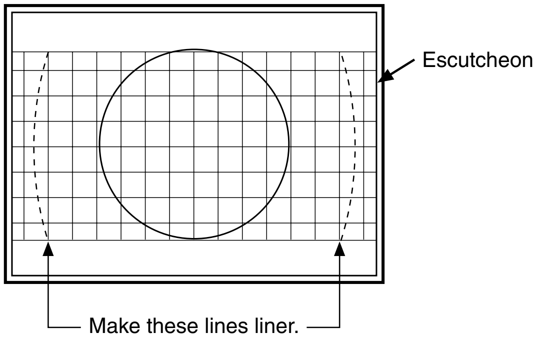
VERTICAL LINEARITY ADJUSTMENT (VERTICAL FREQUENCY: 50Hz)

Measuring Instruments	**Signal generator (Size adjustment signal, Crosshatch signal with circle pattern)**
Card (Slot)	**Component/RGB Input Card (Slot 1)**
Test Points	
Adjustment Points	**DS02 (Vertical Size), DS04 (Vertical Position), DS05 (Side Pin Distortion), DS06 (Corner Distortion (W)), DS07 (Corner Distortion (S)), DS08 (Parallelogram Distortion), DS09 (Trapezoidal Distortion), DS10 (Horizontal Arc Distortion), DX01 (50Hz Vertical Linearity (S Correction)), DX02 (50Hz Vertical Linearity (C Correction)) [Service Menu]**

Note: • Perform the following adjustments after completing the Screen Voltage, X-Ray Protector and High-Voltage adjustments.

1. Apply the 1080/48i (24pSF) size adjustment signal to INPUT A (Terminal Y on the Component/RGB Input Card).
2. Adjust **DS04** to set the vertical position of the image at the center of the CRT screen.
3. Adjust **DS02** to set the vertical amplitude of the image to **193mm**.
4. Apply the 1080/48i (24pSF) crosshatch signal with circle pattern to INPUT A.
5. Adjust **DX01** to set the sizes of the rectangles at the center of the image and those at the left and right ends to be identical.
6. Adjust **DX02** to set the sizes of the rectangles at the top and bottom of the image to be identical.
7. Ensure that the center position is not deviated. If it is, adjust **DS04** again.
8. Repeat adjustments in steps 1 to 7 until the center position and vertical linearity become optimum. If the current image distortion is serious, perform adjustments in steps 9 to 13 before re-performing steps 1 to 7.
9. Adjust **DS05** so that the second vertical lines from the left and right edges are linear.
10. Adjust **DS06 (W)** and **DS07 (S)** to optimize the corner distortions.
11. Adjust **DS08** to optimize the parallelogram distortion (observe the second vertical lines from the left and right edges as the reference).
12. Adjust **DS09** to optimize the trapezoidal distortion (observe the second vertical lines from the left and right edges as the reference).
13. Adjust **DS10** to optimize the horizontal arc distortion.





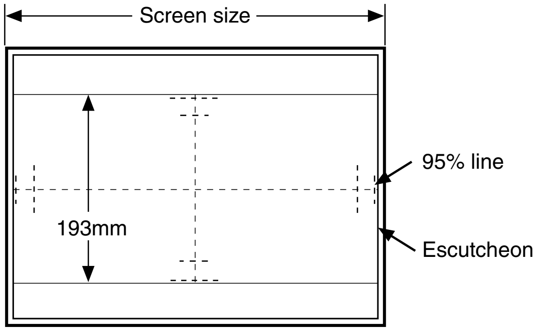
SIGNAL DEFLECTION SYSTEM ADJUSTMENTS

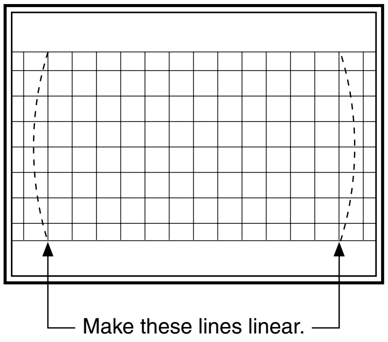
HORIZONTAL/VERTICAL IMAGE POSITION, IMAGE AMPLITUDE AND IMAGE DISTORTION ADJUSTMENTS (HDTV OVERSCAN MODE)

Measuring Instruments	**Signal generator (Size adjustment signal, Crosshatch signal)**
Card (Slot)	**Component/RGB Input Card (Slot 1)**
Test Points	
Adjustment Points	**D*01 (Horizontal Size), D*02 (Vertical Size), D*03 (Horizontal Position), D*04 (Vertical Position), D*05 (Side Pin Distortion), D*06 (Corner Distortion (W)), D*07 (Corner Distortion (S)), D*08 (Parallelogram Distortion), D*09 (Trapezoidal Distortion), D*10 (Horizontal Arc Distortion), D*11 (Vertical Linearity (S Correction)), D*12 (Vertical Linearity (C Correction)) [Service Menu]**

Notes:
- **Perform the following adjustments after completing the Reference value of the vertical linearity adjustments.**
- **The adjusted data becomes the reference value for the HDTV underscan mode. When the data is changed, it is required to re-adjust the underscan data for the same adjustment signal.**

1. Apply the 1080/60i size adjustment signal to INPUT A (Terminal Y on the Component/RGB Input Card).
2. Set the CONTRAST and BRIGHT potentiometers on the front panel to the center click positions.
3. Adjust **DM04** in the Service Menu to set the vertical position of the image at the center of the CRT screen.
4. Adjust **DM02** to set the vertical amplitude of the image to **193mm**.
5. Apply the 1080/60i crosshatch signal to INPUT A.
6. Adjust **DM11** to set the sizes of the rectangles at the center of the image and those at the left and right ends to be identical.
7. Adjust **DM12** to set the sizes of the rectangles at the center of the image and those at the top and bottom to be identical.
8. Ensure that the center position is not deviated. If it is, adjust **DM04** again.
9. Adjust **DM11**, **DM12** and **DM04** repeatedly until the center position and vertical linearity are optimized.
10. Adjust **DM09** to optimize the trapezoidal distortion (observe the second vertical lines from the left and right edges as the reference).
11. Adjust **DM08** to optimize the parallelogram distortion (observe the second vertical lines from the left and right edges as the reference).
12. Adjust **DM10** to optimize the horizontal arc distortion.
13. Adjust **DM05** so that the second vertical lines from the left and right edges are linear.
14. If there is an extreme corner S-shape distortion, adjust **DM07** to optimize it (this adjustment is usually unnecessary).
15. If there is an extreme corner W-shape distortion, adjust **DM06** to optimize it (this adjustment is usually unnecessary).
16. Apply the 1080/60i size adjustment signal to INPUT A.
17. Ensure that the vertical amplitude of the image is **193mm**. If it is not, adjust **DM02** again.
18. Adjust **DM03** so that the horizontal position of the image comes at the center of the CRT screen.
19. Adjust the horizontal image amplitude with **DM01** to match the 95% line of the size adjustment signal onto the edge of the escutcheon.
20. Vary the adjustment signal and adjustment data, and re-perform adjustments in steps 1 to 19 above (see Table 8).





Adjustment Step No.	Adjustment signal	Adjustment Data
1	1080/60i	DM
2	1080/48i (24pSF)	DS
3	720/60p	DU

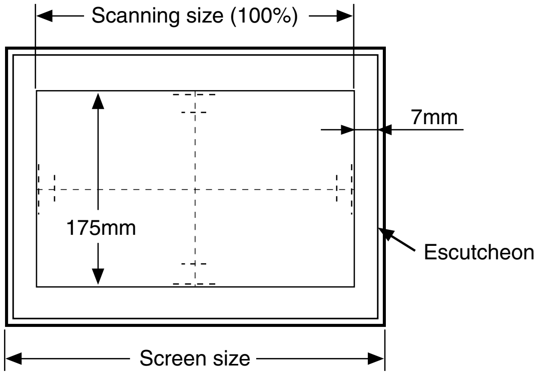
Table 8

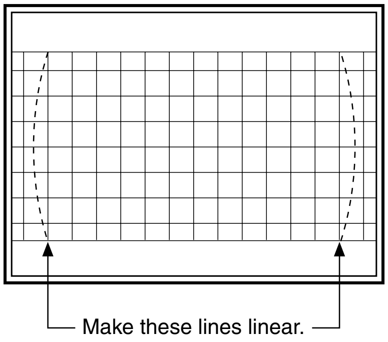
HORIZONTAL/VERTICAL IMAGE POSITION, IMAGE AMPLITUDE AND IMAGE DISTORTION ADJUSTMENTS (HDTV UNDERSCAN MODE)

Measuring Instruments	**Signal generator (Size adjustment signal, Crosshatch signal)**
Card (Slot)	**Component/RGB Input Card (Slot 1)**
Test Points	
Adjustment Points	**D*01 (Horizontal Size), D*02 (Vertical Size), D*03 (Horizontal Position), D*04 (Vertical Position), D*05 (Side Pin Distortion), D*06 (Corner Distortion (W)), D*07 (Corner Distortion (S)), D*08 (Parallelogram Distortion), D*09 (Trapezoidal Distortion), D*10 (Horizontal Arc Distortion), D*11 (Vertical Linearity (S Correction)), D*12 (Vertical Linearity (C Correction)) [Service Menu]**

Notes:
- **Perform the following adjustments after completing the Reference Mode (HDTV overscan mode) adjustments.**
- **The data adjusted for the reference mode becomes the reference value for the HDTV underscan mode. When the data of the reference mode is changed, it is required to re-adjust the underscan data for the same adjustment signal.**

1. Apply the 1080/60i size adjustment signal to INPUT A (Terminal Y on the Component/RGB Input Card).
2. Set the CONTRAST and BRIGHT potentiometers on the front panel to the center click positions.
3. Press the UNDER SCAN button on the front panel to set the scanning size to underscanning.
4. Adjust **DN04** in the Service Menu to set the vertical position of the image at the center of the CRT screen.
5. Adjust **DN02** to set the vertical amplitude of the image to **175mm**.
6. Apply the 1080/60i crosshatch signal to INPUT A.
7. Adjust **DN11** to set the sizes of the rectangles at the center of the image and those at the left and right ends to be identical.
8. Adjust **DN12** to set the sizes of the rectangles at the center of the image and those at the top and bottom to be identical.
9. Ensure that the center position is not deviated. If it is, adjust **DN04** again.
10. Adjust **DN11**, **DN12** and **DN04** repeatedly until the center position and vertical linearity are optimized.
11. Adjust **DN09** to optimize the trapezoidal distortion (observe the second vertical lines from the left and right edges as the reference).
12. Adjust **DN08** to optimize the parallelogram distortion (observe the second vertical lines from the left and right edges as the reference).
13. Adjust **DN10** to optimize the horizontal arc distortion.
14. Adjust **DN05** so that the second vertical lines from the left and right edges are linear.
15. If there is an extreme corner S-shape distortion, adjust **DN07** to optimize it (this adjustment is usually unnecessary).
16. If there is an extreme corner W-shape distortion, adjust **DN06** to optimize it (this adjustment is usually unnecessary).
17. Apply the 1080/60i size adjustment signal to INPUT A.
18. Ensure that the vertical amplitude of the image is **175mm**. If it is not, adjust **DN02** again.
19. Adjust **DN03** so that the horizontal position of the image comes at the center of the CRT screen.
20. Adjust **DN01** to set the size adjustment signals at **7mm** from the escutcheons on the left and right side of the image.
21. Vary the adjustment signal and adjustment data, and re-perform adjustments in steps 1 to 20 above (see Table 9).





Adjustment Step No.	Adjustment signal	Adjustment Data
1	1080/60i	DN
2	1080/48i (24pSF)	DT
3	720/60p	DV

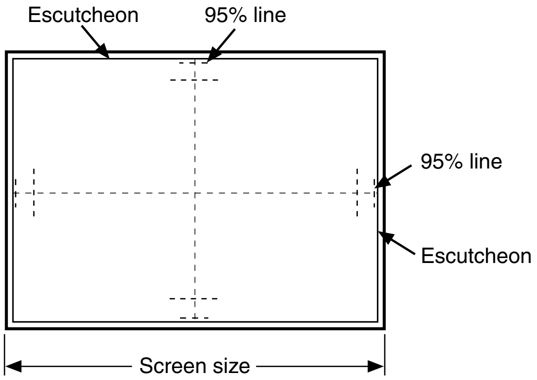
Table 9

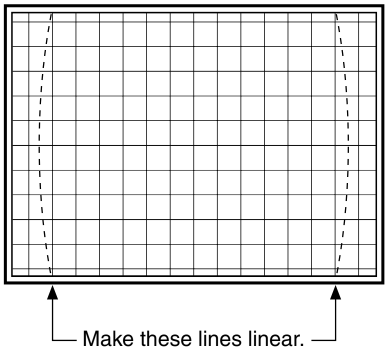
HORIZONTAL/VERTICAL IMAGE POSITION, IMAGE AMPLITUDE AND IMAGE DISTORTION ADJUSTMENTS (SDTV OVERSCAN 4:3 MODE)

Measuring Instruments	**Signal generator (Size adjustment signal, Crosshatch signal)**
Card (Slot)	**Component/RGB Input Card (Slot 1)**
Test Points	
Adjustment Points	**D*01 (Horizontal Size), D*02 (Vertical Size), D*03 (Horizontal Position), D*04 (Vertical Position), D*05 (Side Pin Distortion), D*06 (Corner Distortion (W)), D*07 (Corner Distortion (S)), D*08 (Parallelogram Distortion), D*09 (Trapezoidal Distortion), D*10 (Horizontal Arc Distortion), D*11 (Vertical Linearity (S Correction)), D*12 (Vertical Linearity (C Correction)) [Service Menu]**

Note: • The adjusted data becomes the reference value for the SDTV underscan 4:3 mode and SDTV overscan/underscan 16:9 modes. When the data is changed, it is required to re-adjust the underscan data and SDTV overscan/underscan 16:9 mode data for the same adjustment signal.

1. Apply the 480/60i size adjustment signal to INPUT A (Terminal Y on the Component/RGB Input Card).
2. Set the CONTRAST and BRIGHT potentiometers on the front panel to the center click positions.
3. Adjust **DE04** in the Service Menu to set the vertical position of the image at the center of the CRT screen.
4. Adjust the horizontal image amplitude with **DE02** to match the 95% line of the size adjustment signal onto the edge of the escutcheon.
5. Apply the 480/60i crosshatch signal to INPUT A.
6. Adjust **DE11** to set the sizes of the rectangles at the center of the image and those at the left and right ends to be identical.
7. Adjust **DE12** to set the sizes of the rectangles at the center of the image and those at the top and bottom to be identical.
8. Ensure that the center position is not deviated. If it is, adjust **DE04** again.
9. Adjust **DE11**, **DE12** and **DE04** repeatedly until the center position and vertical linearity are optimized.
10. Adjust **DE09** to optimize the trapezoidal distortion (observe the second vertical lines from the left and right edges as the reference).
11. Adjust **DE08** to optimize the parallelogram distortion (observe the second vertical lines from the left and right edges as the reference).
12. Adjust **DE10** to optimize the horizontal arc distortion.
13. Adjust **DE05** so that the second vertical lines from the left and right edges are linear.
14. If there is an extreme corner S-shape distortion, adjust **DE07** to optimize it (this adjustment is usually unnecessary).
15. If there is an extreme corner W-shape distortion, adjust **DE06** to optimize it (this adjustment is usually unnecessary).
16. Apply the 480/60i size adjustment signal to INPUT A.
17. Observe the vertical amplitude of the image. If it is dislocated, adjust **DE02** again.
18. Adjust **DE03** so that the horizontal position of the image comes at the center of the CRT screen.
19. Adjust the horizontal image amplitude with **DE01** to match the 95% line of the size adjustment signal onto the edge of the escutcheon.
20. Vary the adjustment signal and adjustment data, and re-perform adjustments in steps 1 to 19 above (see Table 10).





Adjustment Step No.	Adjustment signal	Adjustment Data
1	480/60i	DE
2	480/60p	DI
3	576/50i	DG

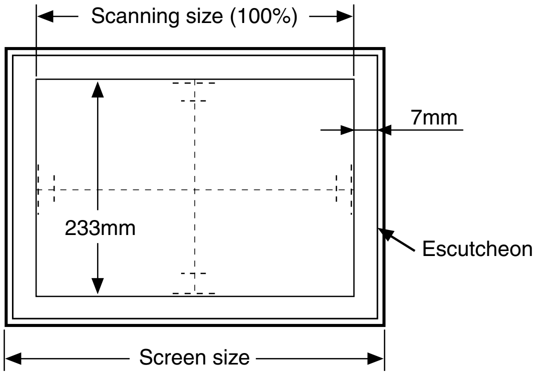
Table 10

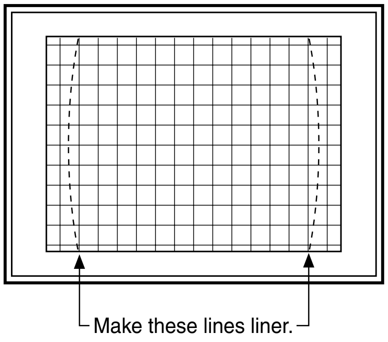
HORIZONTAL/VERTICAL IMAGE POSITION, IMAGE AMPLITUDE AND IMAGE DISTORTION ADJUSTMENTS (SDTV UNDERSCAN 4:3 MODE)

Measuring Instruments	**Signal generator (Size adjustment signal, Crosshatch signal)**
Card (Slot)	**Component/RGB Input Card (Slot 1)**
Test Points	
Adjustment Points	**D*01 (Horizontal Size), D*02 (Vertical Size), D*03 (Horizontal Position), D*04 (Vertical Position), D*05 (Side Pin Distortion), D*06 (Corner Distortion (W)), D*07 (Corner Distortion (S)), D*08 (Parallelogram Distortion), D*09 (Trapezoidal Distortion), D*10 (Horizontal Arc Distortion), D*11 (Vertical Linearity (S Correction)), D*12 (Vertical Linearity (C Correction)) [Service Menu]**

Notes:
- **Perform the following adjustments after completing the Reference Mode (SDTV overscan 4:3 mode) adjustments.**
- **The data adjusted for the reference mode becomes the reference value for the SDTV underscan 4:3 mode and SDTV overscan/underscan 16:9 modes. When the data of the reference mode is changed, it is required to re-adjust the underscan data and SDTV overscan/underscan 16:9 mode data for the same adjustment signal.**

1. Apply the 480/60i size adjustment signal to INPUT A (Terminal Y on the Component/RGB Input Card).
2. Set the CONTRAST and BRIGHT potentiometers on the front panel to the center click positions.
3. Press the UNDER SCAN button on the front panel to set the scanning size to underscanning.
4. Adjust **DF04** in the Service Menu to set the vertical position of the image at the center of the CRT screen.
5. Adjust **DF02** to set the vertical amplitude of the image to **233mm**.
6. Apply the 480/60i crosshatch signal to INPUT A.
7. Adjust **DF11** to set the sizes of the rectangles at the center of the image and those at the left and right ends to be identical.
8. Adjust **DF12** to set the sizes of the rectangles at the center of the image and those at the top and bottom to be identical.
9. Ensure that the center position is not deviated. If it is, adjust **DF04** again.
10. Adjust **DF11**, **DF12** and **DF04** repeatedly until the center position and vertical linearity are optimized.
11. Adjust **DF09** to optimize the trapezoidal distortion (observe the second vertical lines from the left and right edges as the reference).
12. Adjust **DF08** to optimize the parallelogram distortion (observe the second vertical lines from the left and right edges as the reference).
13. Adjust **DF10** to optimize the horizontal arc distortion.
14. Adjust **DF05** so that the second vertical lines from the left and right edges are linear.
15. If there is an extreme corner S-shape distortion, adjust **DF07** to optimize it (this adjustment is usually unnecessary).
16. If there is an extreme corner W-shape distortion, adjust **DF06** to optimize it (this adjustment is usually unnecessary).
17. Apply the 480/60i size adjustment signal to INPUT A.
18. Ensure that the vertical amplitude of the image is **233mm**. If it is not, adjust **DF02** again.
19. Adjust **DF03** so that the horizontal position of the image comes at the center of the CRT screen.
20. Adjust **DF01** to set the size adjustment signals at **7mm** from the escutcheons on the left and right side of the image.
21. Vary the adjustment signal and adjustment data, and re-perform adjustments in steps 1 to 20 above (see Table 11).





Adjustment Step No.	Adjustment signal	Adjustment Data
1	480/60i	DF
2	480/60p	DJ
3	576/50i	DH

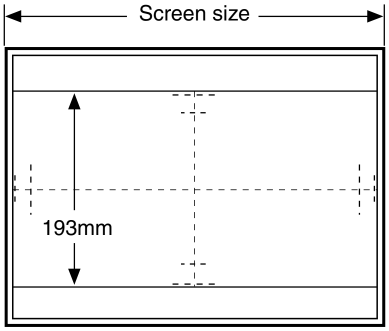
Table 11

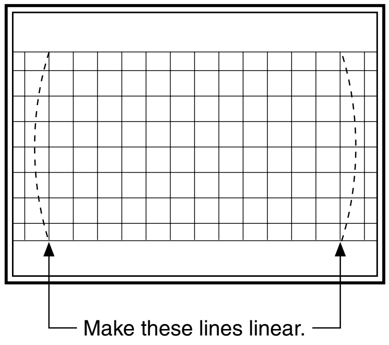
HORIZONTAL/VERTICAL IMAGE POSITION, IMAGE AMPLITUDE AND SIDE PIN DISTORTION ADJUSTMENTS (SDTV OVERSCAN 16:9 MODE)

Measuring Instruments	**Signal generator (Size adjustment signal, Crosshatch signal)**
Card (Slot)	**Component/RGB Input Card (Slot 1)**
Test Points	
Adjustment Points	**DW** (Vertical Size), DW** (Vertical Position), DW** (Side Pin Distortion), CE** (Corner Distortion (W)), CE** (Corner Distortion (S)), CE** (Parallelogram Distortion), CE** (Trapezoidal Distortion), CE** (Horizontal Arc Distortion) [Service Menu]**

Notes:
- **Perform the following adjustments after completing the Reference Mode (SDTV overscan 4:3 mode) adjustments.**
- **The data adjusted for the reference mode becomes the reference value for the SDTV underscan 4:3 mode and SDTV overscan/underscan 16:9 modes. When the data of the reference mode is changed, it is required to re-adjust the underscan data and SDTV overscan/underscan 16:9 mode data for the same adjustment signal.**
- **The corner distortions (W) & (S), parallelogram distortion, trapezoidal distortion and horizontal arc distortion adjustment data for this adjustment are common to those in the SDTV overscan 16:9 mode and the SDTV underscan 16:9 mode adjustments. This adjustment data needs to be adjusted in either mode.**
- **The corner distortions (W) & (S), parallelogram distortion, trapezoidal distortion and horizontal arc distortion adjustment data for this adjustment are common to those in the 480/60i and NTSC signal or 576/50i and PAL signal adjustments. This adjustment data needs to be adjusted with either signal.**

1. Apply the 480/60i size adjustment signal to INPUT A (Terminal Y on the Component/RGB Input Card).
2. Press the ASPECT button on the front panel to set the scanning size to 16:9 mode.
3. Set the CONTRAST and BRIGHT potentiometers on the front panel to the center click positions.
4. Adjust **DW14** in the Service Menu to set the vertical position of the image at the center of the CRT screen.
5. Adjust **DW13** to set the vertical amplitude of the image to **193mm**.
6. Apply the 480/60i crosshatch signal to INPUT A.
7. Adjust **CE08** to optimize the trapezoidal distortion (observe the second vertical lines from the left and right edges as the reference).
8. Adjust **CE07** to optimize the parallelogram distortion (observe the second vertical lines from the left and right edges as the reference).
9. Adjust **CE09** to optimize the horizontal arc distortion.
10. Adjust **DW15** so that the second vertical lines from the left and right edges are linear.
11. If there is an extreme corner S-shape distortion, adjust **CE06** to optimize it (this adjustment is usually unnecessary).
12. If there is an extreme corner W-shape distortion, adjust **CE05** to optimize it (this adjustment is usually unnecessary).
13. Apply the 480/60i size adjustment signal to INPUT A.
14. Ensure that the vertical amplitude of the image is **193mm**. If it is not, adjust **DW13** again.
15. Adjust **DW14** so that the vertical position of the image comes at the center of the CRT screen.
16. Vary the adjustment signal and adjustment data, and re-perform adjustments in steps 1 to 15 above (see Table 12).





Adjustment Step No.	Adjustment Signal	Adjustment Data							
		Vertical Position	Vertical size	Side Pin Distortion	Corner Distortion (W)	Corner Distortion (S)	Parallelogram Distortion	Trapezoidal Distortion	Horizontal Arc Distortion
1	480/60i	DW14	DW13	DW15	CE05	CE06	CE07	CE08	CE09
2	480/60p	DW26	DW25	DW27	CE15	CE16	CE17	CE18	CE19
3	576/50i	DW20	DW19	DW21	CE10	CE11	CE12	CE13	CE14

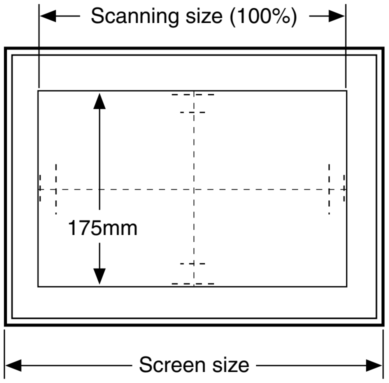
Table 12

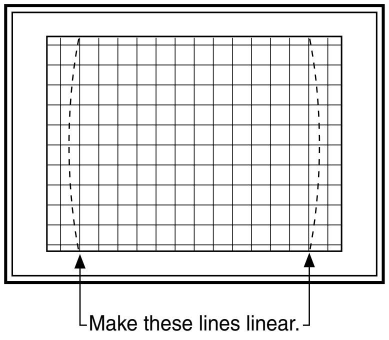
HORIZONTAL/VERTICAL IMAGE POSITION, IMAGE AMPLITUDE AND SIDE PIN DISTORTION ADJUSTMENTS (SDTV UNDERSCAN 16:9 MODE)

Measuring Instruments	**Signal generator (Size adjustment signal, Crosshatch signal)**
Card (Slot)	**Component/RGB Input Card (Slot 1)**
Test Points	
Adjustment Points	**DW** (Vertical Size), DW** (Vertical Position), DW** (Side Pin Distortion), CE** (Corner Distortion (W)), CE** (Corner Distortion (S)), CE** (Parallelogram Distortion), CE** (Trapezoidal Distortion), CE** (Horizontal Arc Distortion) [Service Menu]**

Notes:
- **Perform the following adjustments after completing the Reference Mode (SDTV overscan 4:3 mode) and SDTV underscan 4:3 mode adjustments.**
- **The data adjusted for the reference mode becomes the reference value for the SDTV underscan 4:3 mode and SDTV overscan/ underscan 16:9 modes. When the data of the reference mode is changed, it is required to re-adjust the underscan data and SDTV overscan/underscan 16:9 mode data for the same adjustment signal.**
- **The corner distortions (W) & (S), parallelogram distortion, trapezoidal distortion and horizontal arc distortion adjustment data for this adjustment are common to those in the SDTV overscan 16:9 mode and the SDTV underscan 16:9 mode adjustments. This adjustment data needs to be adjusted in either mode.**
- **The corner distortions (W) & (S), parallelogram distortion, trapezoidal distortion and horizontal arc distortion adjustment data for this adjustment are common to those in the 480/60i and NTSC signal or 576/50i and PAL signal adjustments. This adjustment data needs to be adjusted with either signal.**

1. Apply the 480/60i size adjustment signal to INPUT A (Terminal Y on the Component/RGB Input Card).
2. Press the ASPECT and UNDER SCAN buttons on the front panel to set the scanning size to underscanning for the 16:9 ratio.
3. Set the CONTRAST and BRIGHT potentiometers on the front panel to the center click positions.
4. Adjust **DW17** in the Service Menu to set the vertical position of the image at the center of the CRT screen.
5. Adjust **DW16** to set the vertical amplitude of the image to **175mm**.
6. Apply the 480/60i crosshatch signal to INPUT A.
7. Adjust **CE08** to optimize the trapezoidal distortion (observe the second vertical lines from the left and right edges as the reference).
8. Adjust **CE07** to optimize the parallelogram distortion (observe the second vertical lines from the left and right edges as the reference).
9. Adjust **CE09** to optimize the horizontal arc distortion.
10. Adjust **DW18** so that the second vertical lines from the left and right edges are linear.
11. If there is an extreme corner S-shape distortion, adjust **CE06** to optimize it (this adjustment is usually unnecessary).
12. If there is an extreme corner W-shape distortion, adjust **CE05** to optimize it (this adjustment is usually unnecessary).
13. Apply the 480/60i size adjustment signal to INPUT A.
14. Ensure that the vertical amplitude of the image is **175mm**. If it is not, adjust **DW16** again.
15. Adjust **DW17** so that the vertical position of the image comes at the center of the CRT screen.
16. Vary the adjustment signal and adjustment data, and re-perform adjustments in steps 1 to 15 above (see Table 13).





Adjustment Step No.	Adjustment Signal	Adjustment Data							
		Vertical Position	Vertical size	Side Pin Distortion	Corner Distortion (W)	Corner Distortion (S)	Parallelogram Distortion	Trapezoidal Distortion	Horizontal Arc Distortion
1	480/60i	DW17	DW16	DW18	CE05	CE06	CE07	CE08	CE09
2	480/60p	DW29	DW28	DW30	CE15	CE16	CE17	CE18	CE19
3	576/50i	DW23	DW22	DW24	CE10	CE11	CE12	CE13	CE14

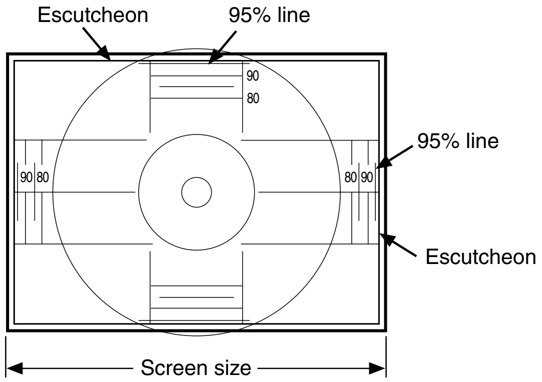
Table 13

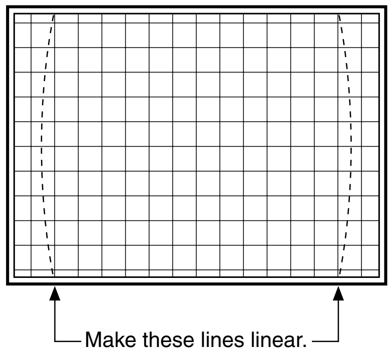
HORIZONTAL/VERTICAL IMAGE POSITION, IMAGE AMPLITUDE AND IMAGE DISTORTION ADJUSTMENTS (NTSC/PAL OVERSCAN 4:3 MODE)

Measuring Instruments	**Signal generator (Mono-scope signal, Crosshatch signal)**
Card (Slot)	**NTSC/PAL Video Input Card (Slot 2)**
Test Points	
Adjustment Points	**D*01 (Horizontal Size), D*02 (Vertical Size), D*03 (Horizontal Position), D*04 (Vertical Position), D*05 (Side Pin Distortion), D*06 (Corner Distortion (W)), D*07 (Corner Distortion (S)), D*08 (Parallelogram Distortion), D*09 (Trapezoidal Distortion), D*10 (Horizontal Arc Distortion), D*11 (Vertical Linearity (S Correction)), D*12 (Vertical Linearity (C Correction)) [Service Menu]**

Notes:
- **Perform the following adjustments after completing the Reference value for the vertical linearity adjustments.**
- **The adjusted data becomes the reference value for the NTSC/PAL underscan 4:3 mode and NTSC/PAL overscan/ underscan 16:9 modes. When the data is changed, it is required to re-adjust the underscan data and NTSC/PAL overscan/underscan 16:9 mode data for the same adjustment signal.**

1. Apply the NTSC mono-scope signal to INPUT C (Terminal VIDEO1 on the NTSC/PAL Video Input Card).
2. Set the CONTRAST and BRIGHT potentiometers on the front panel to the center click positions.
3. Adjust **DA04** in the Service Menu to set the vertical position of the image at the center of the CRT screen.
4. Adjust **DA02** to match the 95% line of the vertical image amplitude onto the edge of the escutcheon.
5. Apply the NTSC crosshatch signal to INPUT C.
6. Adjust **DA11** to set the sizes of the rectangles at the center of the image and those at the left and right ends to be identical.
7. Adjust **DA12** to set the sizes of the rectangles at the center of the image and those at the top and bottom to be identical.
8. Ensure that the center position is not deviated. If it is, adjust **DA04** again.
9. Adjust **DA11**, **DA12** and **DA04** repeatedly until the center position and vertical linearity are optimized.
10. Adjust **DA09** to optimize the trapezoidal distortion (observe the second vertical lines from the left and right edges as the reference).
11. Adjust **DA08** to optimize the parallelogram distortion (observe the second vertical lines from the left and right edges as the reference).
12. Adjust **DA10** to optimize the horizontal arc distortion.
13. Adjust **DA05** so that the second vertical lines from the left and right edges are linear.
14. If there is an extreme corner S-shape distortion, adjust **DA07** to optimize it (this adjustment is usually unnecessary).
15. If there is an extreme corner W-shape distortion, adjust **DA06** to optimize it (this adjustment is usually unnecessary).
16. Apply the NTSC mono-scope signal to INPUT C.
17. Observe the vertical amplitude of the image. If it is dislocated, adjust **DA02** again.
18. Adjust **DA03** so that the horizontal position of the image comes at the center of the CRT screen.
19. Adjust **DA01** to match the 95% line of the vertical the image amplitude onto the edge of the escutcheon.
20. Vary the adjustment signal and adjustment data, and re-perform adjustments in steps 1 to 19 above (see Table 14).





Adjustment Step No.	Adjustment signal	Adjustment Data
1	NTSC	DA
2	PAL	DC

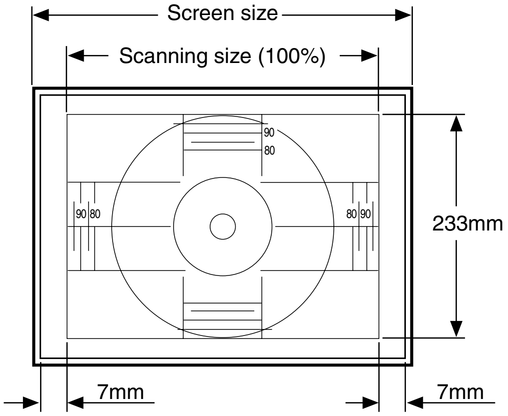
Table 14

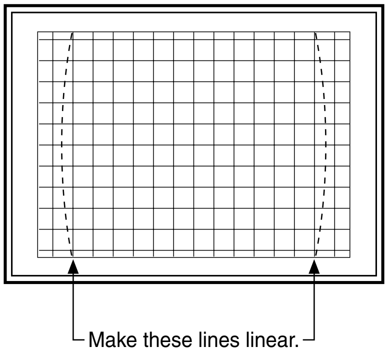
HORIZONTAL/VERTICAL IMAGE POSITION, IMAGE AMPLITUDE AND IMAGE DISTORTION ADJUSTMENTS (NTSC/PAL UNDERSCAN 4:3 MODE)

Measuring Instruments	**Signal generator (Mono-scope signal, Crosshatch signal)**
Card (Slot)	**NTSC/PAL Video Input Card (Slot 2)**
Test Points	
Adjustment Points	**D*01 (Horizontal Size), D*02 (Vertical Size), D*03 (Horizontal Position), D*04 (Vertical Position), D*05 (Side Pin Distortion), D*06 (Corner Distortion (W)), D*07 (Corner Distortion (S)), D*08 (Parallelogram Distortion), D*09 (Trapezoidal Distortion), D*10 (Horizontal Arc Distortion), D*11 (Vertical Linearity (S Correction)), D*12 (Vertical Linearity (C Correction)) [Service Menu]**

Notes:
- **Perform the following adjustments after completing the Reference Mode (NTSL/PAL overscan 4:3 mode) adjustments.**
- **The data adjusted for the reference mode becomes the reference value for the NTSC/PAL underscan 4:3 mode and NTSC/PAL overscan/underscan 16:9 modes. When the data of the reference mode is changed, it is required to re-adjust the underscan data and NTSC/PAL overscan/underscan 16:9 mode data for the same adjustment signal.**

1. Apply the NTSC mono-scope signal to INPUT C (Terminal VIDEO1 on the NTSC/PAL Video Input Card).
2. Set the CONTRAST and BRIGHT potentiometers on the front panel to the center click positions.
3. Press the UNDER SCAN button on the front panel to set the scanning size to underscanning.
4. Adjust **DB04** in the Service Menu to set the vertical position of the image at the center of the CRT screen.
5. Adjust **DB02** to set the vertical amplitude of the image to **233mm**.
6. Apply the NTSC crosshatch signal to INPUT C.
7. Adjust **DB11** to set the sizes of the rectangles at the center of the image and those at the left and right ends to be identical.
8. Adjust **DB12** to set the sizes of the rectangles at the center of the image and those at the top and bottom to be identical.
9. Ensure that the center position is not deviated. If it is, adjust **DB04** again.
10. Adjust **DB11**, **DB12** and **DB04** repeatedly until the center position and vertical linearity are optimized.
11. Adjust **DB09** to optimize the trapezoidal distortion (observe the second vertical lines from the left and right edges as the reference).
12. Adjust **DB08** to optimize the parallelogram distortion (observe the second vertical lines from the left and right edges as the reference).
13. Adjust **DB10** to optimize the horizontal arc distortion.
14. Adjust **DB05** so that the second vertical lines from the left and right edges are linear.
15. If there is an extreme corner S-shape distortion, adjust **DB07** to optimize it (this adjustment is usually unnecessary).
16. If there is an extreme corner W-shape distortion, adjust **DB06** to optimize it (this adjustment is usually unnecessary).
17. Apply the NTSC mono-scope signal to INPUT C.
18. Ensure that the vertical amplitude of the image is **233mm**. If it is not, adjust **DB02** again.
19. Adjust **DB03** so that the horizontal position of the image comes at the center of the CRT screen.
20. Adjust **DB01** to set the mono-scope signals at **7mm** from the escutcheons on the left and right side of the image.
21. Vary the adjustment signal and adjustment data, and re-perform adjustments in steps 1 to 20 above (see Table 15).





Adjustment Step No.	Adjustment signal	Adjustment Data
1	NTSC	DB
2	PAL	DD

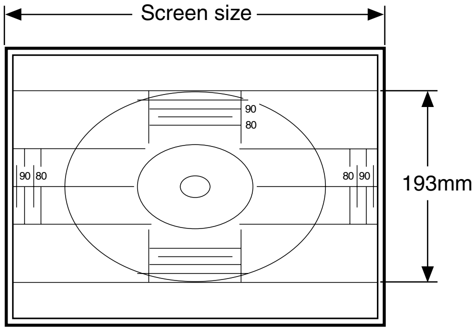
Table 15

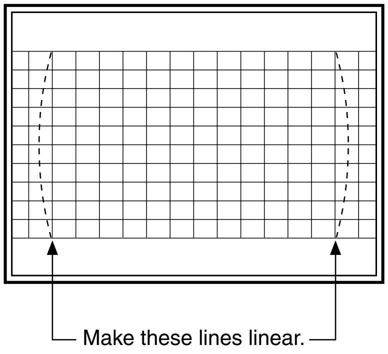
VERTICAL IMAGE POSITION, VERTICAL IMAGE AMPLITUDE AND SIDE PIN DISTORTION ADJUSTMENTS (NTSC/PAL OVERSCAN 16:9 MODE)

Measuring Instruments	**Signal generator (Mono-scope signal, Crosshatch signal)**
Card (Slot)	**NTSC/PAL Video Input Card (Slot 2)**
Test Points	
Adjustment Points	**DW** (Vertical Size), DW** (Vertical Position), DW** (Side Pin Distortion), CE** (Corner Distortion (W)), CE** (Corner Distortion (S)), CE** (Parallelogram Distortion), CE** (Trapezoidal Distortion), CE** (Horizontal Arc Distortion) [Service Menu]**

Notes:
- **Perform the following adjustments after completing the Reference Mode (NTSL/PAL overscan 4:3 mode) adjustment.**
- **The data adjusted for the reference mode becomes the reference value for the NTSC/PAL underscan 4:3 mode and NTSC/PAL overscan/underscan 16:9 modes. When the data of the reference mode is changed, it is required to re-adjust the underscan data and NTSC/PAL overscan/underscan 16:9 mode data for the same adjustment signal.**
- **The corner distortions (W) & (S), parallelogram distortion, trapezoidal distortion and horizontal arc distortion adjustment data for this adjustment are common to those in the NTSC/PAL overscan 16:9 mode and the NTSC/PAL underscan 16:9 mode adjustments. This adjustment data needs to be adjusted in either mode.**
- **The corner distortions (W) & (S), parallelogram distortion, trapezoidal distortion and horizontal arc distortion adjustment data for this adjustment are common to those in the 480/60i and NTSC signal or 576/50i and PAL signal adjustments. This adjustment data needs to be adjusted with either signal.**

1. Apply the NTSC mono-scope signal to INPUT C (Terminal VIDEO1 on the NTSC/PAL Video Input Card).
2. Press the ASPECT button on the front panel to set the scanning size to 16:9 mode.
3. Set the CONTRAST and BRIGHT potentiometers on the front panel to the center click positions.
4. Adjust **DW02** in the Service Menu to set the vertical position of the image at the center of the CRT screen.
5. Adjust **DW01** to set the vertical amplitude of the image to **193mm**.
6. Apply the NTSC crosshatch signal to INPUT C.
7. Adjust **CE08** to optimize the trapezoidal distortion (observe the second vertical lines from the left and right edges as the reference).
8. Adjust **CE07** to optimize the parallelogram distortion (observe the second vertical lines from the left and right edges as the reference).
9. Adjust **CE09** to optimize the horizontal arc distortion.
10. Adjust **DW03** so that the second vertical lines from the left and right edges are linear.
11. If there is an extreme corner S-shape distortion, adjust **CE06** to optimize it (this adjustment is usually unnecessary).
12. If there is an extreme corner W-shape distortion, adjust **CE05** to optimize it (this adjustment is usually unnecessary).
13. Apply the NTSC mono-scope signal to INPUT C.
14. Ensure that the vertical amplitude of the image is **193mm**. If it is not, adjust **DW01** again.
15. Adjust **DW02** so that the vertical position of the image comes at the center of the CRT screen.
16. Vary the adjustment signal and adjustment data, and re-perform adjustments in steps 1 to 15 above (see Table 16).





Adjustment Step No.	Adjustment Signal	Adjustment Data							
		Vertical Position	Vertical size	Side Pin Distortion	Corner Distortion (W)	Corner Distortion (S)	Parallelogram Distortion	Trapezoidal Distortion	Horizontal Arc Distortion
1	NTSC	DW02	DW01	DW03	CE05	CE06	CE07	CE08	CE09
2	PAL	DW08	DW07	DW09	CE10	CE11	CE12	CE13	CE14

Table 16

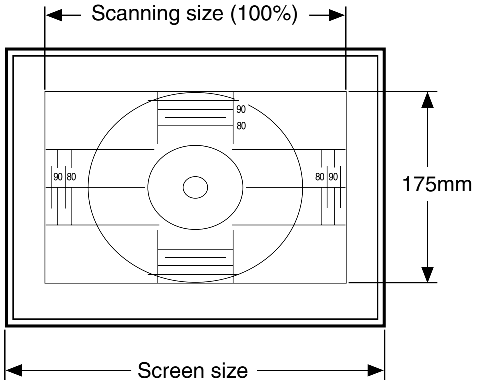
VERTICAL IMAGE POSITION, VERTICAL IMAGE AMPLITUDE AND SIDE PIN DISTORTION ADJUSTMENTS (NTSC/PAL UNDERSCAN 16:9 MODE)

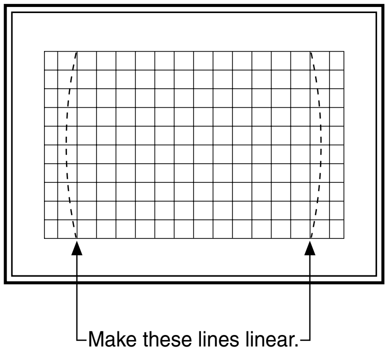
Measuring Instruments	**Signal generator (Mono-scope signal, Crosshatch signal)**
Card (Slot)	**NTSC/PAL Video Input Card (Slot 2)**
Test Points	
Adjustment Points	**DW** (Vertical Size), DW** (Vertical Position), DW** (Side Pin Distortion), CE** (Corner Distortion (W)), CE** (Corner Distortion (S)), CE** (Parallelogram Distortion), CE** (Trapezoidal Distortion), CE** (Horizontal Arc Distortion) [Service Menu]**

Notes:

- **Perform the following adjustments after completing the Reference Mode (NTSL/PAL overscan 4:3 mode) and NTSC/PAL underscan 4:3 mode adjustments.**
- **The data adjusted for the reference mode becomes the reference value for the NTSC/PAL underscan 4:3 mode and NTSC/PAL overscan/underscan 16:9 modes. When the data of the reference mode is changed, it is required to re-adjust the underscan data and NTSC/PAL overscan/underscan 16:9 mode data for the same adjustment signal.**
- **The corner distortions (W) & (S), parallelogram distortion, trapezoidal distortion and horizontal arc distortion adjustment data for this adjustment are common to those in the NTSC/PAL overscan 16:9 mode and the NTSC/PAL underscan 16:9 mode adjustments. This adjustment data needs to be adjusted in either mode.**
- **The corner distortions (W) & (S), parallelogram distortion, trapezoidal distortion and horizontal arc distortion adjustment data for this adjustment are common to those in the 480/60i and NTSC signal or 576/50i and PAL signal adjustments. This adjustment data needs to be adjusted with either signal.**

1. Apply the NTSC mono-scope signal to INPUT C (Terminal VIDEO1 on the NTSC/PAL Video Input Card).
2. Press the ASPECT and UNDER SCAN buttons on the front panel to set the scanning size to underscanning for the 16:9 ratio.
3. Set the CONTRAST and BRIGHT potentiometers on the front panel to the center click positions.
4. Adjust **DW05** in the Service Menu to set the vertical position of the image at the center of the CRT screen.
5. Adjust **DW04** to set the vertical amplitude of the image to **175mm**.
6. Apply the NTSC crosshatch signal to INPUT C.
7. Adjust **CE08** to optimize the trapezoidal distortion (observe the second vertical lines from the left and right edges as the reference).
8. Adjust **CE07** to optimize the parallelogram distortion (observe the second vertical lines from the left and right edges as the reference).
9. Adjust **CE09** to optimize the horizontal arc distortion.
10. Adjust **DW06** so that the second vertical lines from the left and right edges are linear.
11. If there is an extreme corner S-shape distortion, adjust **CE06** to optimize it (this adjustment is usually unnecessary).
12. If there is an extreme corner W-shape distortion, adjust **CE05** to optimize it (this adjustment is usually unnecessary).
13. Apply the NTSC mono-scope signal to INPUT C.
14. Ensure that the vertical amplitude of the image is **175mm**. If it is not, adjust **DW04** again.
15. Adjust **DW05** so that the vertical position of the image comes at the center of the CRT screen.
16. Vary the adjustment signal and adjustment data, and re-perform adjustments in steps 1 to 15 above (see Table 17).





Adjustment Step No.	Adjustment Signal	Adjustment Data							
		Vertical Position	Vertical size	Side Pin Distortion	Corner Distortion (W)	Corner Distortion (S)	Parallelogram Distortion	Trapezoidal Distortion	Horizontal Arc Distortion
1	NTSC	DW05	DW04	DW06	CE05	CE06	CE07	CE08	CE09
2	PAL	DW11	DW10	DW12	CE10	CE11	CE12	CE13	CE14

Table 17

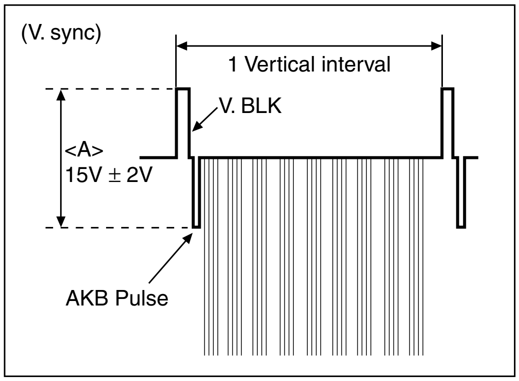
LOW-LIGHT WHITE BALANCE ADJUSTMENT

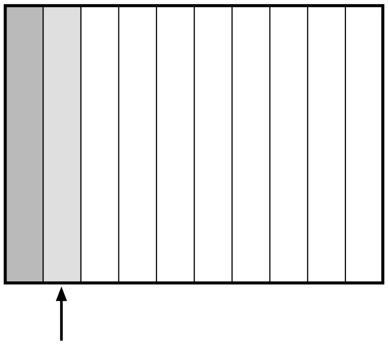
LOW-LIGHT WHITE BALANCE ADJUSTMENT

Measuring Instruments	**Signal generator (Crosshatch signal, 10-step gray scale signal)** **Oscilloscope**
Card (Slot)	**Component/RGB Input Card (Slot 1)**
Test Points	**TP-47B [CRT SOCKET PWB]** **TP-GND [CRT SOCKET PWB]**
Adjustment Points	**W*04 (Cut Off (R)), W*05 (Cut Off (G)), W*06 (Cut Off (B)) [Service Menu]**

Notes:
- **Perform the following adjustments after completing the screen size adjustment.**
- **Set the COLOR TEMP./BAL. data in the Setup Menu to "00".**

1. Apply the 1080/60i component crosshatch signals to INPUT A.
2. Set COLOR TEMP. of "COLOR TEMP./BAL." in the Setup Menu to HIGH.
3. Set the PHASE, CHROMA, BRIGHT and CONTRAST potentiometers on the front panel to the center click positions.
4. Connect the oscilloscope across TP-47B and TP-GND.
5. Ensure that the AKB pulse voltage <A> of the waveform at TP-47B is **15 V ± 2 V**. If it is not, adjust it with the **SCREEN VR** potentiometer.
6. Apply the 1080/60i component 10-step gray scale signal to INPUT A.
7. Turn the BRIGHT potentiometer on the front panel gradually until the second gray step in the gray scale lights slightly. (Do not touch the **SCREEN VR** potentiometer.)
8. Adjust **WO04**, **WO05** and **WO06** in the Service Menu so that the gray bars are not tinted. (Do not set the values of **WO04** to **WO06** no more than "**50**".)
9. Write the data of **WO04** to **WO06** in **WP04** to **WP06** without any alteration. (Do not adjust the **WP** items.)





SIGNAL WHITE BALANCE ADJUSTMENTS

COMPONENT SIGNAL HIGH-LIGHT WHITE BALANCE ADJUSTMENTS (HIGH: D9300)

Measuring Instruments	**Signal generator (Component 10-step gray scale signal)** **Color temperature meter**
Card (Slot)	**Component/RGB Input Card (Slot 1)**
Test Points	
Adjustment Points	**W*01 (Drive (R)), W*03 (Drive (B)), W*04 (Cut Off (R)), W*05 (Cut Off (G)), W*06 (Cut Off (B)) [Service Menu]**

Notes:
- **Perform the following adjustments after completing the Low-Light White Balance Adjustment.**
- **Set the COLOR TEM./BAL. data in the Setup Menu to "00".**
- **The values adjusted with WO become the reference values for the following adjustment. When this data is changed, it is required to re-adjust the white balance data of all of the adjustment signals (Component, NTSC and PAL).**
  When re-adjusting the 1080/60i signal, use the WI.

1. Apply the 1080/60i component 10-step gray scale signal to INPUT A.
2. Set COLOR TEMP. of "COLOR TEMP./BAL." in the Setup Menu to HIGH.
3. Set the PHASE, CHROMA, BRIGHT and CONTRAST potentiometers on the front panel to the center click positions.
4. Adjust **WO01** and **WO03** in the Service Menu using the color temperature meter so that the color temperature is set as shown below.
   (Do not touch **WO02**.)

   Color temperature : HIGH (D9300). x = 0.283, y = 0.297 (Reference value)
5. Ensure that the white balance tracking is correct from the gray scale steps with lower color temperatures to those with higher color temperatures.
   If the white balance tracking is deviated in darker steps, adjust **WO04** to **WO06** (Low-Light) to correct it.
   (Do not set the values of **WO04** to **WO06** no more than "**50**".)
6. Vary the adjustment signal and adjustment data, and re-perform adjustments in steps 1 to 5 above (see Table 18).

Adjustment Signal	Function	Adjustment Data		
		R	G	B
COMMON	Drive	WO01	—	WO03
	Cut off	WO04	WO05	WO06
1080/60i (Common to 1080/24psf)	Drive	WI01	—	WI03
	Cut off	WI04	WI05	WI06
720/60p	Drive	WK01	—	WK03
	Cut off	WK04	WK05	WK06
480/60i (Common to 576/50i)	Drive	WE01	—	WE03
	Cut off	WE04	WE05	WE06
480/60p (Common to 576/50p)	Drive	WG01	—	WG03
	Cut off	WG04	WG05	WG06

Table 18

COMPONENT SIGNAL LOW-LIGHT WHITE BALANCE ADJUSTMENTS (LOW: D65)

Measuring Instruments	**Signal generator (Component 10-step gray scale signal)** **Color temperature meter**
Card (Slot)	**Component/RGB Input Card (Slot 1)**
Test Points	
Adjustment Points	**W*01 (Drive (R)), W*03 (Drive (B)), W*04 (Cut Off (R)), W*05 (Cut Off (G)), W*06 (Cut Off (B)) [Service Menu]**

Notes:
- **Perform the following adjustments after completing the Low-Light White Balance Adjustment.**
- **Set the COLOR TEM./BAL. data in the Setup Menu to "00".**
- **The values adjusted with WP become the reference values for the following adjustment. When this data is changed, it is required to re-adjust the white balance data of all of the adjustment signals (Component, NTSC and PAL).**
  When re-adjusting the 1080/60i signal, use the WJ.

1. Apply the 1080/60i component 10-step gray scale signal to INPUT A.
2. Set COLOR TEMP. of "COLOR TEMP./BAL." in the Setup Menu to LOW.
3. Set the PHASE, CHROMA, BRIGHT and CONTRAST potentiometers on the front panel to the center click positions.
4. Adjust **WP01** and **WP03** in the Service Menu using the color temperature meter so that the color temperature is set as shown below.
   (Do not touch **WP02**.)

   Color temperature: LOW (D65). x = 0.313, y = 0.329 (Reference value)
5. Ensure that the white balance tracking is correct from the gray scale steps with lower color temperatures to those with higher color temperatures.
   If the white balance tracking is deviated in darker steps, adjust **WP04** to **WP06** (Low-Light) to correct it.
   (Do not set the values of **WP04** to **WP06** no more than "**50**".)
6. Vary the adjustment signal and adjustment data, and re-perform adjustments in steps 1 to 5 above (see Table 19).

Adjustment Signal	Function	Adjustment Data		
		R	G	B
COMMON	Drive	WP01	—	WP03
	Cut off	WP04	WP05	WP06
1080/60i (Common to 1080/24psf)	Drive	WJ01	—	WJ03
	Cut off	WJ04	WJ05	WJ06
720/60p	Drive	WL01	—	WL03
	Cut off	WL04	WL05	WL06
480/60i (Common to 576/50i)	Drive	WF01	—	WF03
	Cut off	WF04	WF05	WF06
480/60p (Common to 576/50p)	Drive	WH01	—	WH03
	Cut off	WH04	WH05	WH06

Table 19

NTSC/PAL HIGH-LIGHT/LOW-LIGHT WHITE BALANCE ADJUSTMENTS

Measuring Instruments	**Signal generator (10-step gray scale signal)** **Color temperature meter**
Card (Slot)	**NTSC/PAL Video Input Card (Slot 2)**
Test Points	
Adjustment Points	**W*01 (Drive (R)), W*03 (Drive (B)), W*04 (Cut Off (R)), W*05 (Cut Off (G)), W*06 (Cut Off (B)) [Service Menu]**

Notes:
- **Perform the following adjustments after completing the 1080/60i White Balance (High-Light, Low-Light) Adjustments.**
- **Set the COLOR TEM./BAL. data in the Setup Menu to “00”.**
- **The values adjusted with WO (see the description of the High-Light White Balance adjustment) become the reference values for the high-light white balance adjustment. When this data is changed, it is required to re-adjust the high-light white balance data of all of the adjustment signals (Component, NTSC and PAL).**
- **The values adjusted with WP (see the description of the Low-Light White Balance adjustment) become the reference values for the low-light white balance adjustment. When this data is changed, it is required to re-adjust the low-light white balance data of all of the adjustment signals (Component, NTSC and PAL).**

<HIGH: D9300>

1. Apply the NTSC 10-step gray scale signal to INPUT C (Terminal VIDEO1 of the NTSC/PAL Video Input Card).
2. Set COLOR TEMP. of “COLOR TEMP./BAL.” in the Setup Menu to HIGH.
3. Set the PHASE, CHROMA, BRIGHT and CONTRAST potentiometers on the front panel to the center click positions.
4. Adjust **WA01** and **WA03** in the Service Menu using the color temperature meter so that the color temperature is set as shown below. (Do not touch **WA02**.)

   Color temperature : HIGH (D9300). x = 0.283, y = 0.297 (Reference value)

5. Ensure that the white balance tracking is correct from the gray scale steps with lower color temperatures to those with higher color temperatures. If the white balance tracking is deviated in darker steps, adjust **WA04** to **WA06** (Low-Light) to correct it. (Do not set the values of **WA04** to **WA06** no more than “**50**”.)

<LOW: D65>

6. Set COLOR TEMP. of “COLOR TEMP./BAL.” in the Setup Menu to LOW.
7. Adjust **WB01** and **WB03** in the Service Menu using the color temperature meter so that the color temperature is set as shown below. (Do not touch **WB02**.)

   Color temperature : LOW (D65). x = 0.313, y = 0.329 (Reference value)

8. Ensure that the white balance tracking is correct from the gray scale steps with lower color temperatures to those with higher color temperatures. If the white balance tracking is deviated in darker steps, adjust **WB04** to **WB06** (Low-Light) to correct it. (Do not set the values of **WB04** to **WB06** no more than “**50**”.)
9. Vary the adjustment signal and adjustment data, and re-perform adjustments in steps 1 to 8 above (see Table 20).

Adjustment Signal	**Function**	**Adjustment Data**		
		R	**G**	**B**
NTSC (Common to VIDEO and Y/C) [HIGH : D9300]	Drive	WA01	—	WA03
	Cut off	WA04	WA05	WA06
NTSC (Common to VIDEO and Y/C) [LOW : D65]	Drive	WB01	—	WB03
	Cut off	WB04	WB05	WB06
PAL (Common to VIDEO and Y/C) [HIGH : D9300]	Drive	WC01	—	WC03
	Cut off	WC04	WC05	WC06
PAL (Common to VIDEO and Y/C) [LOW : D65]	Drive	WD01	—	WD03
	Cut off	WD04	WD05	WD06

Table 20

SIGNAL BRIGHTNESS ADJUSTMENTS

BRIGHTNESS ADJUSTMENTS (HDTV)

Measuring Instruments	**Signal generator (Component gray scale signal)**
Card (Slot)	**Component/RGB Input Card (Slot 1)**
Test Points	
Adjustment Points	**S*02 (Overscan Bright High), S*06 (Overscan Bright Low),** **SM** (Underscan Bright High/Low)** **[Service Menu]**

Notes:
- **Perform the following adjustments after completing the Contrast and White Balance adjustments.**
- **Set the SUB PICTURE ADJ. data in the Setup Menu to "00".**
- **The value adjusted at the SO adjustment becomes the reference value for the following adjustments. When this data is changed, it is required to re-adjust the data of all of the adjustment signals (HDTV, SDTV and NTSC/PAL). When re-adjusting the 1080/60i signal, use the SI.**
- **When overscan data of a signal is changed, it is required to re-adjust the underscan data of the same adjustment signal.**
- **After completing the brightness adjustments, make sure that the Low-Light is not deviated. If it is, it is required to perform the Low-Light adjustment again.**

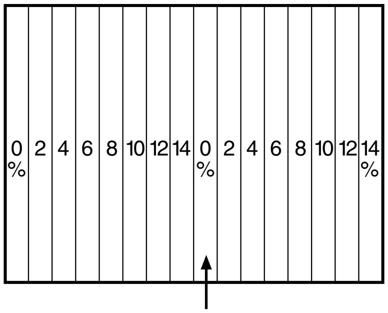
— Standard value (SO) adjustment —

<White Balance HIGH: D9300>

1. Apply the 1080/60i component gray scale signal to INPUT A.
2. Set COLOR TEMP. of "COLOR TEMP./BAL." in the Setup Menu to HIGH.
3. Set the PHASE, CHROMA, BRIGHT and CONTRAST potentiometers on the front panel to the center click positions.
4. Adjust **SO02** in the Service Menu so that the 0% black area in the gray scale signal lights up slightly. (Be sure to avoid degradation of the black color.)

<White Balance LOW (D65)>

5. Set COLOR TEMP. of "COLOR TEMP./BAL." in the Setup Menu to LOW.
6. Adjust **SO06** so that the 0% black area in the gray scale signal lights slightly. (Be sure to avoid degradation of the black color.)



0% Black area

— Other signals adjustments —

<White Balance HIGH (D9300)>

7. Apply the 1080/60i component gray scale signal to INPUT A.
8. Set COLOR TEMP. of "COLOR TEMP./BAL." in the Setup Menu to HIGH.
9. Set the PHASE, CHROMA, BRIGHT and CONTRAST potentiometers on the front panel to the center click positions.
10. Adjust **SI02** in the Service Menu so that the 0% black area in the gray scale signal lights up slightly. (Be sure to avoid degradation of the black color.)
11. Set the UNDER SCAN button on the front panel to ON so that the scanning size is underscanning.
12. Adjust **SM26** so that the 0% black area in the gray scale signal lights slightly. (Be sure to avoid degradation of the black color.)
13. Set the UNDER SCAN button on the front panel to OFF.

<White Balance LOW (D65)>

14. Set COLOR TEMP. of "COLOR TEMP./BAL." in the Setup Menu to LOW.
15. Adjust **SI06** so that the 0% black area in the gray scale signal lights slightly. (Be sure to avoid degradation of the black color.)
16. Set the UNDER SCAN button on the front panel to ON so that the scanning size is underscanning.
17. Adjust **SM27** so that the 0% black area in the gray scale signal lights slightly. (Be sure to avoid degradation of the black color.)
18. Set the UNDER SCAN button on the front panel to OFF.
19. Vary the adjustment signal and adjustment data, and re-perform adjustments in steps 7 to 18 above (see Table 21).

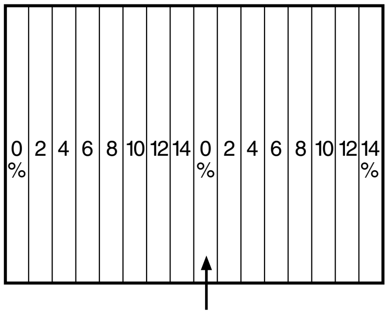
Adjustment Signal	White Balance HIGH		White Balance LOW	
	Overscan	Underscan	Overscan	Underscan
COMMON	SO02	—	SO06	—
1080/60i	SI02	SM26	SI06	SM27
1080/24psf	SJ02	SM29	SJ06	SM30
720/60p	SK02	SM32	SK06	SM33

Table 21

BRIGHTNESS ADJUSTMENTS (SDTV)

Measuring Instruments	**Signal generator (Component gray scale signal)**
Card (Slot)	**Component/RGB Input Card (Slot 1)**
Test Points	
Adjustment Points	**S*02 (4:3 Overscan Bright High), S*06 (4:3 Overscan Bright Low), SM** (4:3 Underscan Bright High/Low), SN** (16:9 Overscan/Underscan Bright High/Low) [Service Menu]**

Notes:
- **Perform the following adjustment after completing the 1080/60i Brightness Adjustment.**
- **Set the SUB PICTURE ADJ. data in the Setup Menu to "00".**
- **The SO value (see the description for the HDTV Brightness adjustment) becomes the reference value for the following adjustments. When this data is changed, it is required to re-adjust the data of all of the adjustment signals (HDTV, SDTV and NTSC/PAL). When re-adjusting the 1080/60i signal, use the SI.**
- **When overscan data of a signal is changed, it is required to re-adjust the underscan data of the same adjustment signal.**
- **When the 4:3 data of a signal is changed, it is required to re-adjust the 16:9 data of the same adjustment signal.**
- **After completing the brightness adjustments, make sure that the Low-Light is not deviated. If it is, it is required to perform the Low-Light adjustment again.**



0% Black area

<White Balance HIGH: D9300>

1. Apply the 480/60i component gray scale signal to INPUT A.
2. Set COLOR TEMP. of "COLOR TEMP./BAL." in the Setup Menu to HIGH.
3. Set the PHASE, CHROMA, BRIGHT and CONTRAST potentiometers on the front panel to the center click positions.
4. Adjust **SE02** in the Service Menu so that the 0% black area in the gray scale signal lights up slightly. (Be sure to avoid degradation of the black color.)
5. Set the ASPECT button on the front panel to ON so that the scanning size is 16:9.
6. Adjust **SN26** so that the 0% black area in the gray scale signal lights slightly. (Be sure to avoid degradation of the black color.)
7. Set the ASPECT button on the front panel to OFF and the UNDER SCAN button to ON to set the scanning size to underscanning for the 4:3 ratio.
8. Adjust **SM14** so that the 0% black area in the gray scale signal lights up slightly. (Be sure to avoid degradation of the black color.)
9. Set the ASPECT button on the front panel to ON to set the scanning size to underscanning for the 16:9 ratio.
10. Adjust **SN29** so that the 0% black area in the gray scale signal lights slightly. (Be sure to avoid degradation of the black color.)
11. Set the ASPECT and UNDER SCAN buttons on the front panel to OFF.

<White Balance LOW (D65)>

12. Set COLOR TEMP. of "COLOR TEMP./BAL." in the Setup Menu to LOW.
13. Adjust **SE06** so that the 0% black area in the gray scale signal lights slightly. (Be sure to avoid degradation of the black color.)
14. Set the ASPECT button on the front panel to ON so that the scanning size is 16:9.
15. Adjust **SN27** so that the 0% black area in the gray scale signal lights slightly. (Be sure to avoid degradation of the black color.)
16. Set the ASPECT button on the front panel to OFF and the UNDER SCAN button to ON to set the scanning size to underscanning for the 4:3 ratio.
17. Adjust **SM15** so that the 0% black area in the gray scale signal lights slightly. (Be sure to avoid degradation of the black color.)
18. Set the ASPECT button on the front panel to ON to set the scanning size to underscanning for the 16:9 ratio.
19. Adjust **SN30** so that the 0% black area in the gray scale signal lights slightly. (Be sure to avoid degradation of the black color)
20. Set the ASPECT and UNDER SCAN buttons on the front panel to OFF.
21. Vary the adjustment signal and adjustment data, and re-perform adjustments in steps 1 to 20 above (see Table 22).

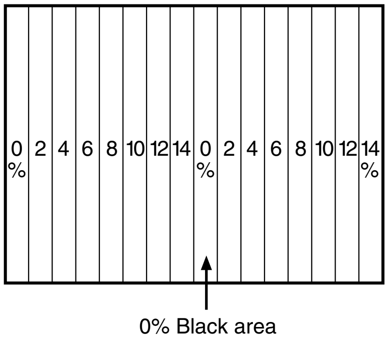
Adjustment Signal	**White Balance HIGH**				**White Balance LOW**			
	Overscan		**Underscan**		**Overscan**		**Underscan**	
	4 : 3	16 : 9	4 : 3	16 : 9	4 : 3	16 : 9	4 : 3	16 : 9
480/60i	SE02	SN26	SM14	SN29	SE06	SN27	SM15	SN30
576/50i	SF02	SN32	SM17	SN35	SF06	SN33	SM18	SN36
480/60p	SG02	SN38	SM20	SN41	SG06	SN39	SM21	SN42

Table 22

BRIGHTNESS ADJUSTMENTS (NTSC/PAL VIDEO)

Measuring Instruments	**Signal generator (Gray scale signal)**
Card (Slot)	**NTSC/PAL Video Input Card (Slot 2)**
Test Points	
Adjustment Points	**S*02 (4:3 Overscan Bright High), S*06 (4:3 Overscan Bright Low), SM** (4:3 Underscan Bright High/Low), SN** (16:9 Overscan/Underscan Bright High/Low) [Service Menu]**

Notes:
- **Ensure that the output waveforms from the NTSC/PAL Video Input Cards are normal before proceeding to the following adjustments (see page 72).**
- **Perform the following adjustments after completing the 1080/60i Brightness Adjustment.**
- **Set the SUB PICTURE ADJ. data in the Setup Menu to "00".**
- **The SO value (see the description for the HDTV Brightness adjustment) becomes the reference value for the following adjustments. When this data is changed, it is required to re-adjust the data of all of the adjustment signals (HDTV, SDTV and NTSC/PAL).**
  When re-adjusting the 1080/60i signal, use the SI. (For the adjustment of the 1080/60i signal, use the Component/RGB Input Card.)
- **When overscan data of a signal is changed, it is required to re-adjust the underscan data of the same adjustment signal.**
- **When the 4:3 data of a signal is changed, it is required to re-adjust the 16:9 data of the same adjustment signal.**
- **After completing the brightness adjustments, make sure that the Low-Light is not deviated. If it is, it is required to perform the Low-Light adjustment again.**



<White Balance HIGH: D9300>

1. Apply the NTSC gray scale signal to INPUT C (Terminal VIDEO1 of the NTSC/PAL Video Input Card).
2. Set COLOR TEMP. of "COLOR TEMP./BAL." in the Setup Menu to HIGH.
3. Set the PHASE, CHROMA, BRIGHT and CONTRAST potentiometers on the front panel to the center click positions.
4. Adjust **SA02** in the Service Menu so that the 0% black area in the gray scale signal lights up slightly. (Be sure to avoid degradation of the black color.)
5. Set the ASPECT button on the front panel to ON so that the scanning size is 16:9.
6. Adjust **SN02** so that the 0% black area in the gray scale signal lights slightly. (Be sure to avoid degradation of the black color.)
7. Set the ASPECT button on the front panel to OFF and the UNDER SCAN button to ON to set the scanning size to underscanning for the 4:3 ratio.
8. Adjust **SM02** so that the 0% black area in the gray scale signal lights up slightly. (Be sure to avoid degradation of the black color.)
9. Set the ASPECT button on the front panel to ON to set the scanning size to underscanning for the 16:9 ratio.
10. Adjust **SN05** so that the 0% black area in the gray scale signal lights slightly. (Be sure to avoid degradation of the black color.)
11. Set the ASPECT and UNDER SCAN buttons on the front panel to OFF.

<White Balance LOW (D65)>

12. Set COLOR TEMP. of "COLOR TEMP./BAL." in the Setup Menu to LOW.
13. Adjust **SA06** so that the 0% black area in the gray scale signal lights slightly. (Be sure to avoid degradation of the black color.)
14. Set the ASPECT button on the front panel to ON so that the scanning size is 16:9.
15. Adjust **SN03** so that the 0% black area in the gray scale signal lights slightly. (Be sure to avoid degradation of the black color.)
16. Set the ASPECT button on the front panel to OFF and the UNDER SCAN button to ON to set the scanning size to underscanning for the 4:3 ratio.
17. Adjust **SM03** so that the 0% black area in the gray scale signal lights slightly. (Be sure to avoid degradation of the black color.)
18. Set the ASPECT button on the front panel to ON to set the scanning size to underscanning for the 16:9 ratio.
19. Adjust **SN06** so that the 0% black area in the gray scale signal lights slightly. (Be sure to avoid degradation of the black color)
20. Set the ASPECT and UNDER SCAN buttons on the front panel to OFF.
21. Vary the adjustment signal and adjustment data, and re-perform adjustments in steps 1 to 20 above (see Table 23).

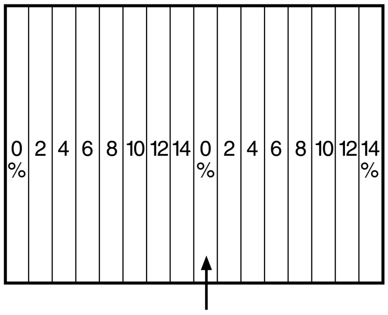
Adjustment Signal	White Balance HIGH				White Balance LOW			
	Overscan		Underscan		Overscan		Underscan	
	4 : 3	16 : 9	4 : 3	16 : 9	4 : 3	16 : 9	4 : 3	16 : 9
NTSC(VIDEO)	SA02	SN02	SM02	SN05	SA06	SN03	SM03	SN06
PAL(VIDEO)	SC02	SN14	SM08	SN17	SC06	SN15	SM09	SN18

Table 23

BRIGHTNESS ADJUSTMENTS (NTSC/PAL Y/C)

Measuring Instruments	**Signal generator (Gray scale signal)**
Card (Slot)	**NTSC/PAL Video Input Card (Slot 2)**
Test Points	
Adjustment Points	**S*02 (4:3 Overscan Bright High), S*06 (4:3 Overscan Bright Low),** **SM** (4:3 Underscan Bright High/Low),** **SN** (16:9 Overscan/Underscan Bright High/Low) [Service Menu]**

Notes:
- **Ensure that the output waveforms from the NTSC/PAL Video Input Cards are normal before proceeding to the following adjustments (see page 72).**
- **Perform the following adjustments after completing the 1080/60i Brightness Adjustment.**
- **Set the SUB PICTURE ADJ. data in the Setup Menu to "00".**
- **The SO value (see the description for the HDTV Brightness adjustment) becomes the reference value for the following adjustments. When this data is changed, it is required to re-adjust the data of all of the adjustment signals (HDTV, SDTV and NTSC/PAL).**
  When re-adjusting the 1080/60i signal, use the SI. (For the adjustment of the 1080/60i signal, use the Component/RGB Input Card.)
- **When overscan data of a signal is changed, it is required to re-adjust the underscan data of the same adjustment signal.**
- **When the 4:3 data of a signal is changed, it is required to re-adjust the 16:9 data of the same adjustment signal.**
- **After completing the brightness adjustments, make sure that the Low-Light is not deviated. If it is, it is required to perform the Low-Light adjustment again.**



0% Black area

<White Balance HIGH: D9300>

1. Apply the NTSC gray scale signal to INPUT D (Terminal Y/C of the NTSC/PAL Video Input Card).
2. Set COLOR TEMP. of "COLOR TEMP./BAL." in the Setup Menu to HIGH.
3. Set the PHASE, CHROMA, BRIGHT and CONTRAST potentiometers on the front panel to the center click positions.
4. Adjust **SB02** in the Service Menu so that the 0% black area in the gray scale signal lights up slightly. (Be sure to avoid degradation of the black color.)
5. Set the ASPECT button on the front panel to ON so that the scanning size is 16:9.
6. Adjust **SN08** so that the 0% black area in the gray scale signal lights slightly. (Be sure to avoid degradation of the black color.)
7. Set the ASPECT button on the front panel to OFF and the UNDER SCAN button to ON to set the scanning size to underscanning for the 4:3 ratio.
8. Adjust **SM05** so that the 0% black area in the gray scale signal lights up slightly. (Be sure to avoid degradation of the black color.)
9. Set the ASPECT button on the front panel to ON to set the scanning size to underscanning for the 16:9 ratio.
10. Adjust **SN11** so that the 0% black area in the gray scale signal lights slightly. (Be sure to avoid degradation of the black color.)
11. Set the ASPECT and UNDER SCAN buttons on the front panel to OFF.

<White Balance LOW (D65)>

12. Set COLOR TEMP. of "COLOR TEMP./BAL." in the Setup Menu to LOW.
13. Adjust **SB06** so that the 0% black area in the gray scale signal lights slightly. (Be sure to avoid degradation of the black color.)
14. Set the ASPECT button on the front panel to ON so that the scanning size is 16:9.
15. Adjust **SN09** so that the 0% black area in the gray scale signal lights slightly. (Be sure to avoid degradation of the black color.)
16. Set the ASPECT button on the front panel to OFF and the UNDER SCAN button to ON to set the scanning size to underscanning for the 4:3 ratio.
17. Adjust **SM06** so that the 0% black area in the gray scale signal lights slightly. (Be sure to avoid degradation of the black color.)
18. Set the ASPECT button on the front panel to ON to set the scanning size to underscanning for the 16:9 ratio.
19. Adjust **SN12** so that the 0% black area in the gray scale signal lights slightly. (Be sure to avoid degradation of the black color)
20. Set the ASPECT and UNDER SCAN buttons on the front panel to OFF.
21. Vary the adjustment signal and adjustment data, and re-perform adjustments in steps 1 to 20 above (see Table 24).

Adjustment Signal	White Balance HIGH				White Balance LOW			
	Overscan		Underscan		Overscan		Underscan	
	4 : 3	16 : 9	4 : 3	16 : 9	4 : 3	16 : 9	4 : 3	16 : 9
NTSC(Y/C)	SB02	SN08	SM05	SN11	SB06	SN09	SM06	SN12
PAL(Y/C)	SD02	SN20	SM11	SN23	SD06	SN21	SM12	SN24

Table 24

ADJUSTMENT OF NTSC/PAL VIDEO INPUT CARD (BT-YA701P)

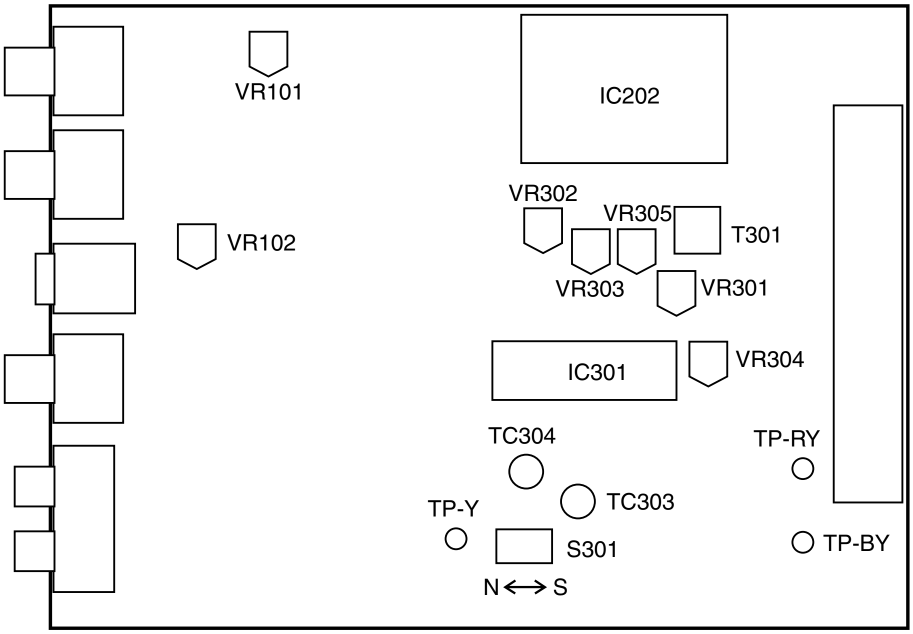
BEFORE ADJUSTMENTS

1. Warm run the set and measuring instruments sufficiently (at least 30 minutes).
2. Never touch the parts (such as variable resistors, transformer and capacitors) other than those specified in the adjustment procedures.
3. Set S301 (APC SW) to N (Normal) unless otherwise specified.

MEASURING INSTRUMENTS AND TOOLS

- Signal generator (NTSC/PAL color bar signals)
- Oscilloscope

ADJUSTMENT LOCATIONS


VR101
IC202
VR302
VR305
T301
VR102
VR303
VR301
IC301
VR304
TC304
TP-RY
TC303
TP-Y
S301
TP-BY
N
S

VR101 : VBS AMP VR
VR102 : Y AMP VR
VR301 : LIS GAIN VR
VR302 : TINT VR
VR303 : NTSC COLOR VR
VR304 : Pr GAIN VR
VR305 : PAL COLOR VR
T301 : LIS 3 TRANSF
TC303 : PAL PHASE TRIM
TC304 : NTSC PHASE TRIM
S301 : APC SW
TP-Y : Q208-E
TP-RY : Q303-E
TP-BY : Q305-E

ADJUSTMENTS OF NTSC/PAL VIDEO INPUT CARD (BT-YA701P)

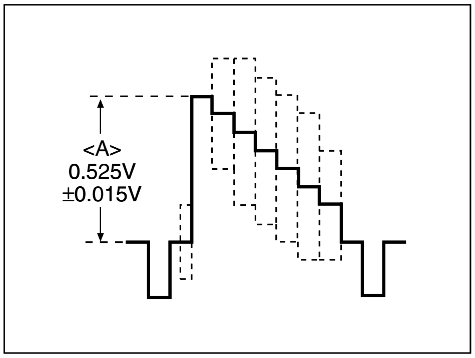
LUMINANCE SIGNAL OUTPUT LEVEL ADJUSTMENT

Measuring Instruments	**Signal generator (NTSC 75% color bar signal)** **Oscilloscope**
Test Points	**CN001 pin 1 (Y Output)**
Adjustment Points	**VR101 (VBS AMP VR), VR102 (Y AMP VR)**

[Preparation] **Supply power to the following connector (CN001) pins using a DC power supply, extension cable, etc.**

CN001 pins 45, 46	14 V DC ± 1 V
CN001 pins 47, 48	7 V DC ± 1 V
CN001 pins 25 - 29, 31, 32, 35, 36, 49, 50	GND

1. Apply the NTSC color bar signal to Terminal VIDEO1.
2. Connect the oscilloscope across CN001 pin 1 and GND.
3. Adjust **VR101** so that the voltage at <A> in the figure on the right is **0.525 V ± 0.015 V**.
4. Apply the HIGH level (3 to 5 V DC) to CN001 pin 5 and switch to the Y/C input.
5. Apply the NTSC color bar signal to terminal Y/C.
6. Adjust **VR102** so that the voltage at <A> in the figure on the right is **0.525 V ± 0.015 V**.



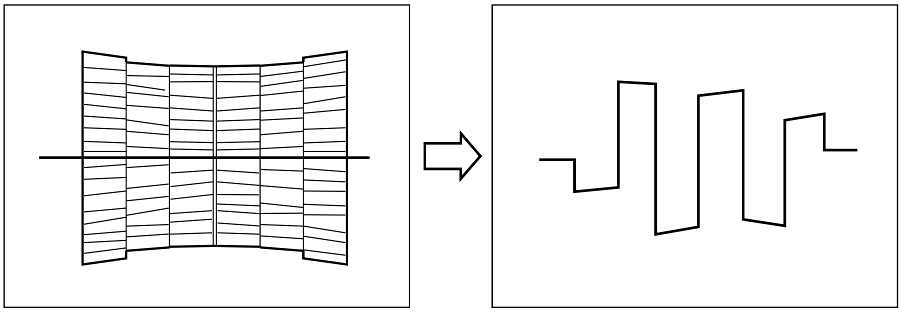
NTSC (3.58 MHz) COLOR SYNC ADJUSTMENT

Measuring Instruments	**Signal generator (NTSC 75% color bar signal)** **Oscilloscope**
Test Points	**CN001 pin 1 (Y Output)** **CN001 pin 2 (B-Y output)**
Adjustment Points	**VR303 (NTSC COLOR VR), S301 (APC SW), TC304 (NTSC PHASE TRIM)**

[Preparation] **Supply power to the following connector (CN001) pins using a DC power supply, extension cable, etc.**

CN001 pins 45, 46	14 V DC ± 1 V
CN001 pins 47, 48	7 V DC ± 1 V
CN001 pins 25 - 29, 31, 32, 35, 36, 49, 50	GND

1. Apply the NTSC color bar signal to Terminal VIDEO1.
2. Connect CH1 of the oscilloscope to CN001 pin 1 and CH2 to CN001 pin 2.
3. While obtaining synchronization with the H sync with CH1, adjust **VR303** so that the CH2 waveform becomes as shown in (A) in the figure shown below.
4. Set S301 to S (Service).
5. Adjust **TC304** so that the CH2 waveform changes from (A) to (B) in the following figure. Waveform (B) should be almost stationary.
6. Set S301 to N (Normal) and ensure that the CH2 waveform is stationary.



(A) (B)

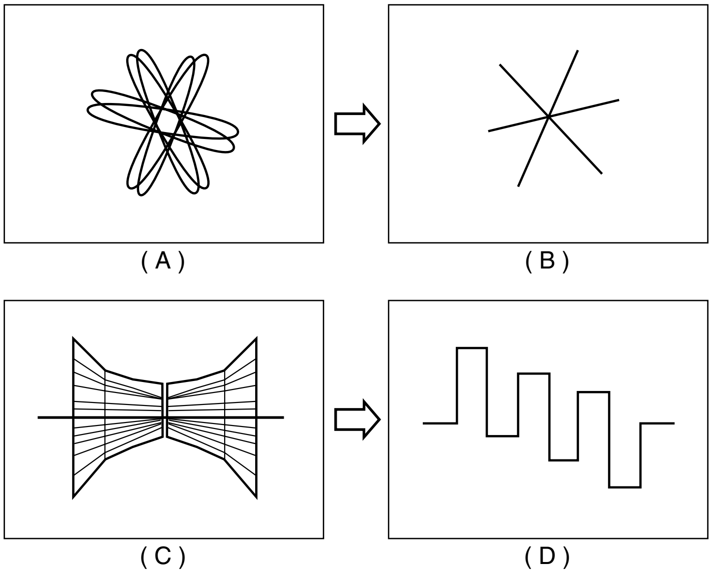
PAL COLOR SYNC AND LISSAJOU ADJUSTMENTS

Measuring Instruments	**Signal generator (PAL 75% color bar signal)** **Oscilloscope**
Test Points	**CN001 pin 1 (Y Output)** **CN001 pin 2 (B-Y Output)** **CN001 pin 3 (R-Y Output)**
Adjustment Points	**S301 (APC SW), VR301 (LIS GAIN VR), VR304 (Pr GAIN VR), VR305 (PAL COLOR VR), TC303(PAL PHASE TRIM), T301 (LIS 3 TRANSF)**

[Preparation] Supply power to the following connector (CN001) pins using a DC power supply, extension cable, etc.

CN001 pins 45, 46	14 V DC ± 1 V
CN001 pins 47, 48	7 V DC ± 1 V
CN001 pins 25 - 29, 31, 32, 35, 36, 49, 50	GND

1. Apply the PAL color bar signal to Terminal VIDEO1.
2. Set S301 to S (Service).
3. Connect CH1 of the oscilloscope to CN001 pin 2 and CH2 to CN001 pin 3.
4. Adjust **VR304** and **VR305** to obtain a waveform as shown in (A) in the figure shown below.
5. Adjust **VR301** and **T301** so that the waveform changes from (A) to (B) in the following figure.
6. Connect CH1 of the oscilloscope to CN001 pin 1.
7. While obtaining synchronization with the H sync with CH1, adjust **VR304** and **VR305** so that the CH2 waveform becomes approximately as shown in (C) in the figure shown below.
8. Adjust **TC303** so that the CH2 waveform changes from (C) to (D) in the following figure. Waveform (D) should be almost stationary.
9. Set S301 to N (Normal) and ensure that the CH2 waveform is stationary.

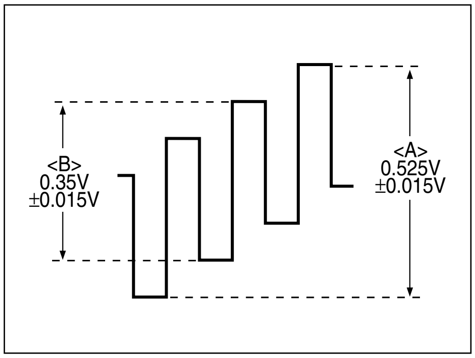


NTSC COLOR TINT AND DEPTH ADJUSTMENTS

Measuring Instruments	**Signal generator (NTSC 75% color bar signal)** **Oscilloscope**
Test Points	**CN001 pin 2 (B-Y Output)**
Adjustment Points	**VR302 (TINT VR), VR303 (NTSC COLOR VR)**

[Preparation] Supply power to the following connector (CN001) pins using a DC power supply, extension cable, etc.

CN001 pins 45, 46	14 V DC ± 1 V
CN001 pins 47, 48	7 V DC ± 1 V
CN001 pins 25 - 29, 31, 32, 35, 36, 49, 50	GND



Note: Perform the following adjustments after completing the NTSC Color Sync adjustment.

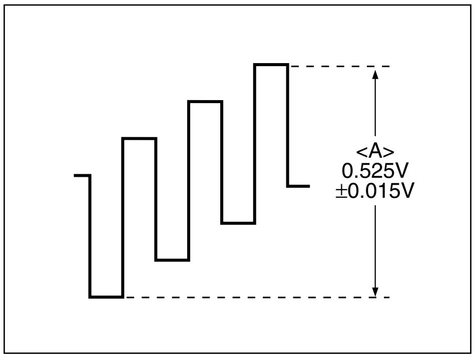
1. Apply the NTSC color bar signal to Terminal VIDEO1.
2. Connect the oscilloscope across CN001 pin 2 and GND.
3. Adjust **VR303** so that the voltage at <A> in the figure on the right is **0.525 V ± 0.015 V**.
4. Adjust **VR302** so that the voltage at <B> in the figure on the right is **0.35 V ± 0.015 V**.

PAL COLOR DEPTH ADJUSTMENT

Measuring Instruments	**Signal generator (PAL 75% color bar signal)** **Oscilloscope**
Test Points	**CN001 pin 2 (B-Y Output)**
Adjustment Points	**VR305 (PAL COLOR VR)**

[Preparation] Supply power to the following connector (CN001) pins using a DC power supply, extension cable, etc.

CN001 pins 45, 46	14 V DC ± 1 V
CN001 pins 47, 48	7 V DC ± 1 V
CN001 pins 25 to 29, 31, 32, 35, 36, 49, 50	GND



Note: Perform the following adjustments after completing the PAL Color Sync and Lissajou adjustments.

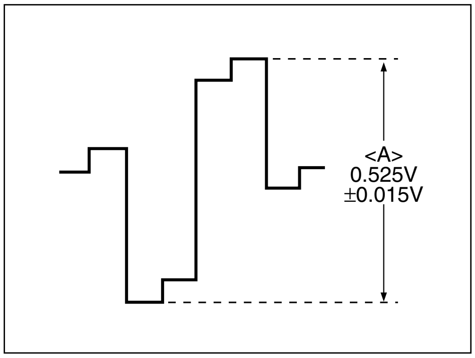
1. Apply the PAL color bar signal to Terminal VIDEO1.
2. Connect the oscilloscope across CN001 pin 2 and GND.
3. Adjust **VR305** so that the voltage at <A> in the figure on the right is **0.525 V ± 0.015 V**.

PAL COLOR DIFFERENCE DEMODULATION RATIO ADJUSTMENT

Measuring Instruments	**Signal generator (PAL 75% color bar signal)** **Oscilloscope**
Test Points	**CN001 pin 3 (R-Y Output)**
Adjustment Points	**VR304 (Pr GAIN VR)**

[Preparation] Supply power to the following connector (CN001) pins using a DC power supply, extension cable, etc.

CN001 pins 45, 46	14 V DC ± 1 V
CN001 pins 47, 48	7 V DC ± 1 V
CN001 pins 25 - 29, 31, 32, 35, 36, 49, 50	GND



Note: Perform the following adjustments after completing the PAL Color Depth adjustment.

1. Apply the PAL color bar signal to Terminal VIDEO1.
2. Connect the oscilloscope across CN001 pin 3 and GND.
3. Adjust **VR304** so that the voltage at <A> in the figure on the right is **0.525 V ± 0.015 V**.

BLOCK DIAGRAM & SCHEMATIC DIAGRAMS & CIRCUIT BOARD DIAGRAMS

NOTE:
BE SURE TO MAKE YOUR ORDERS OF REPLACEMENT PARTS ACCORDING TO PARTS LIST.

CAUTION

THE ▭ MARK INDICATES THE PRIMARY CIRCUIT TO DISTINGUISH THE PRIMARY FROM THE SECONDARY CIRCUIT.
PAY ATTENTION NOT TO RECEIVE AN ELECTRIC SHOCK DURING REPAIR AND SERVICE OF THE PRODUCTS.

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED WITH THE MARK ⚠ HAVE THE SPECIAL CHARACTERISTICS FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SAME TYPE.

CONTENTS

BLOCK DIAGRAM

BLOCK DIAGRAM BLK-1

SCHEMATIC DIAGRAMS

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SIGNAL PWB CIRCUIT DIAGRAM (2/2) SCM-2
MAIN PWB CIRCUIT DIAGRAM (1/2) SCM-3
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S. CORRECTION PWB CIRCUIT DIAGRAM SCM-5
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MOTHER PWB CIRCUIT DIAGRAM SCM-8
REMOTE PWB CIRCUIT DIAGRAM SCM-9
SUB DEF PWB CIRCUIT DIAGRAM SCM-10
HV CONTROL PWB CIRCUIT DIAGRAM SCM-11
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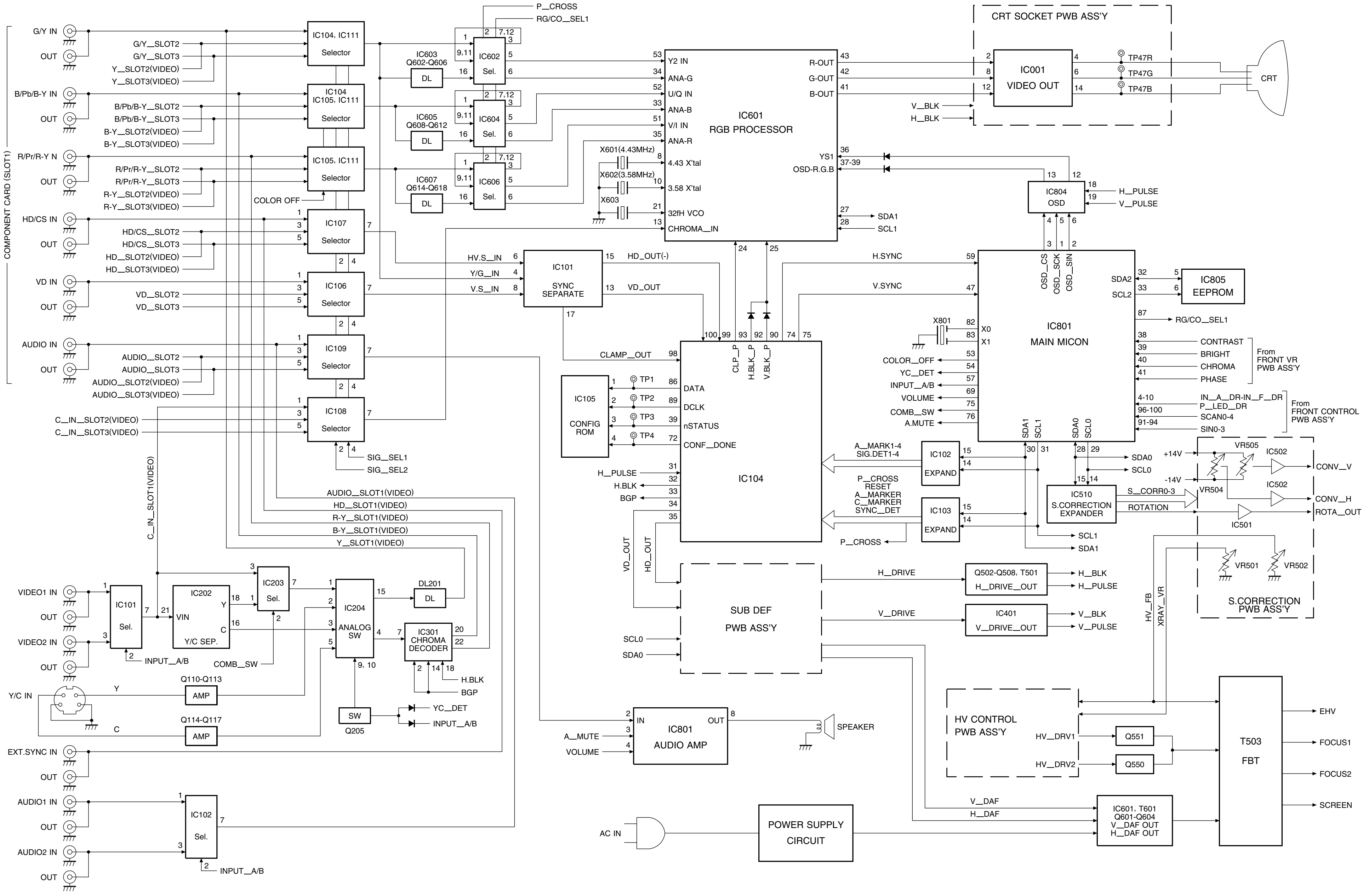
COMPO PWB CIRCUIT DIAGRAM (BT-YA702P) [OPTION] SCM-13

CIRCUIT BOARD DIAGRAMS

MAIN P.C.BOARD CBA-1
SIGNAL, FRONT CONTROL, TALLY & REMOTE P.C.BOARDS CBA-2
CRT, FRONT VR & MOTHER P.C.BOARDS CBA-3
S. CORRECTION P.C.BOARD CBA-4
VIDEO (BT-YA701P) & COMPO (BT-YA702P) P.C.BOARDS (OPTION) CBA-4

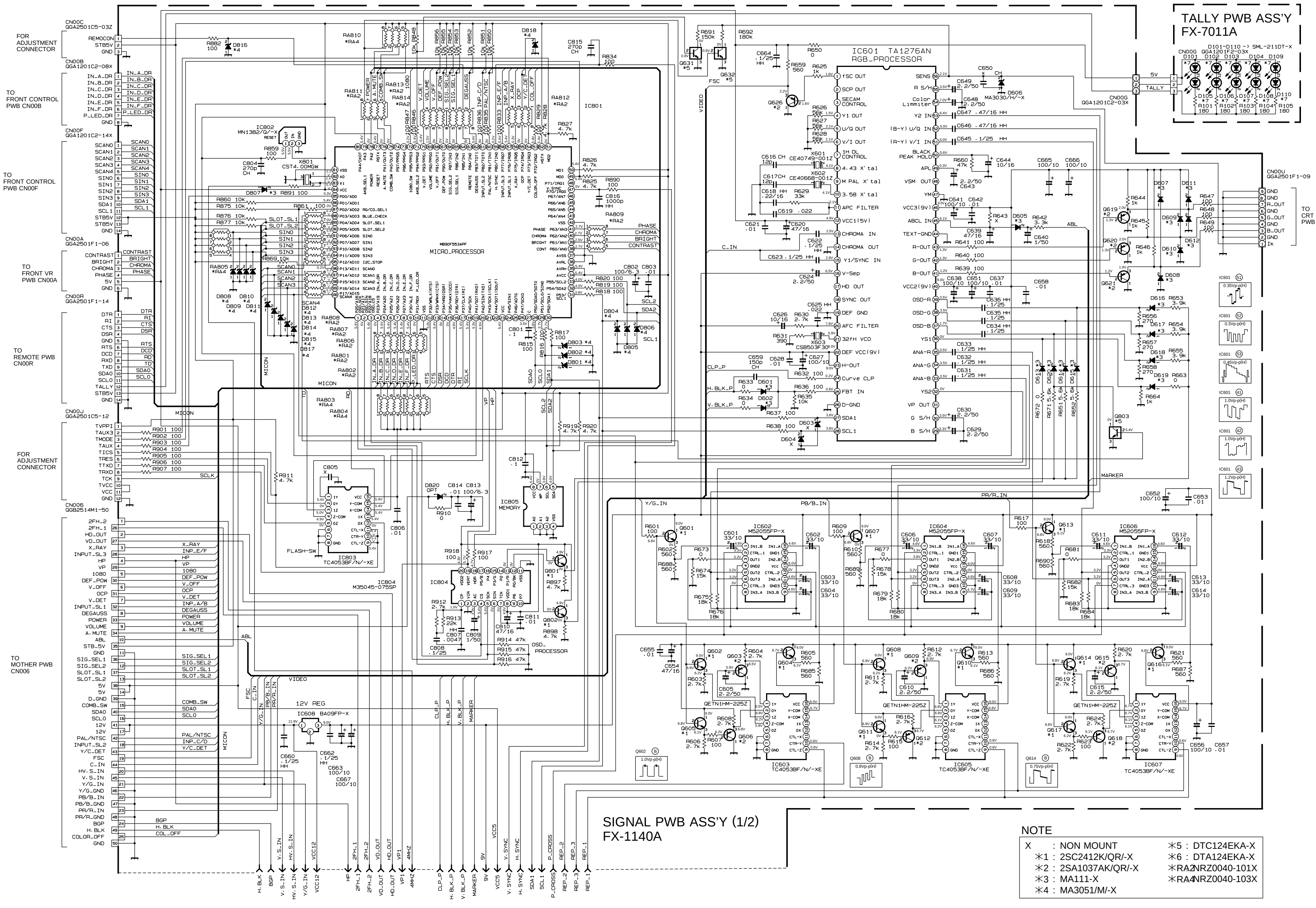
■ BLOCK DIAGRAM



COMPONENT CARD (SLOT1)
G/Y IN
OUT
B/Pb/B-Y IN
OUT
R/Pr/R-Y N
OUT
HD/CS IN
OUT
VD IN
OUT
AUDIO IN
OUT
G/Y__SLOT2
G/Y__SLOT3
Y__SLOT2(VIDEO)
Y__SLOT3(VIDEO)
B/Pb/B-Y__SLOT2
B/Pb/B-Y__SLOT3
B-Y__SLOT2(VIDEO)
B-Y__SLOT3(VIDEO)
R/Pr/R-Y__SLOT2
R/Pr/R-Y__SLOT3
R-Y__SLOT2(VIDEO)
R-Y__SLOT3(VIDEO)
HD/CS__SLOT2
HD/CS__SLOT3
HD__SLOT2(VIDEO)
HD__SLOT3(VIDEO)
VD__SLOT2
VD__SLOT3
AUDIO__SLOT2
AUDIO__SLOT3
AUDIO__SLOT2(VIDEO)
AUDIO__SLOT3(VIDEO)
C__IN__SLOT2(VIDEO)
C__IN__SLOT3(VIDEO)
C__IN__SLOT1(VIDEO)
COLOR OFF
IC104, IC111 Selector
IC104 IC105, IC111 Selector
IC105, IC111 Selector
IC107 Selector
IC106 Selector
IC109 Selector
IC108 Selector
SIG__SEL1
SIG__SEL2
AUDIO__SLOT1(VIDEO)
HD__SLOT1(VIDEO)
R-Y__SLOT1(VIDEO)
B-Y__SLOT1(VIDEO)
Y__SLOT1(VIDEO)
P__CROSS
RG/CO__SEL1
IC603 Q602-Q606
DL
IC605 Q608-Q612
DL
IC607 Q614-Q618
DL
IC602 Sel.
IC604 Sel.
IC606 Sel.
X601(4.43MHz)
X602(3.58MHz)
X603
IC601 RGB PROCESSOR
Y2 IN
ANA-G
U/Q IN
ANA-B
V/I IN
ANA-R
4.43 X'tal
3.58 X'tal
32fH VCO
CHROMA__IN
R-OUT
G-OUT
B-OUT
YS1
OSD-R.G.B
SDA1
SCL1
CRT SOCKET PWB ASS'Y
IC001 VIDEO OUT
TP47R
TP47G
TP47B
CRT
V__BLK
H__BLK
IC804 OSD
H__PULSE
V__PULSE
HV.S__IN
Y/G__IN
V.S__IN
IC101 SYNC SEPARATE
HD__OUT(-)
VD__OUT
CLAMP__OUT
H.SYNC
V.SYNC
IC801 MAIN MICON
X801
X0
X1
OSD__CS
OSD__SCK
OSD__SIN
SDA2
SCL2
IC805 EEPROM
RG/CO__SEL1
CONTRAST
BRIGHT
CHROMA
PHASE
From FRONT VR PWB ASS'Y
IN__A__DR-IN__F__DR
P__LED__DR
SCAN0-4
SIN0-3
From FRONT CONTROL PWB ASS'Y
COLOR__OFF
YC__DET
INPUT__A/B
VOLUME
COMB__SW
A.MUTE
SDA1
SCL1
SDA0
SCL0
IC105 CONFIG ROM
TP1
TP2
TP3
TP4
DATA
DCLK
nSTATUS
CONF__DONE
CLP__P
H.BLK__P
V.BLK__P
IC104
H__PULSE
H.BLK
BGP
A__MARK1-4
SIG.DET1-4
P__CROSS
RESET
A__MARKER
C__MARKER
SYNC__DET
IC102 EXPAND
IC103 EXPAND
P__CROSS
SDA0
SCL0
SCL1
SDA1
+14V
-14V
VR505
VR504
IC502
IC502
IC501
CONV__V
CONV__H
ROTA__OUT
IC510 S.CORRECTION EXPANDER
S__CORR0-3
ROTATION
VR501
VR502
S.CORRECTION PWB ASS'Y
VD__OUT
HD__OUT
SUB DEF PWB ASS'Y
SCL0
SDA0
H__DRIVE
V__DRIVE
Q502-Q508, T501 H__DRIVE__OUT
H__BLK
H__PULSE
IC401 V__DRIVE__OUT
V__BLK
V__PULSE
HV__FB
XRAY__VR
HV CONTROL PWB ASS'Y
HV__DRV1
HV__DRV2
Q551
Q550
T503 FBT
EHV
FOCUS1
FOCUS2
SCREEN
V__DAF
H__DAF
IC601, T601 Q601-Q604 V__DAF OUT H__DAF OUT
POWER SUPPLY CIRCUIT
AC IN
IC801 AUDIO AMP
IN
OUT
A__MUTE
VOLUME
SPEAKER
VIDEO CARD (SLOT1)
VIDEO1 IN
OUT
VIDEO2 IN
OUT
Y/C IN
Y
C
EXT.SYNC IN
OUT
AUDIO1 IN
OUT
AUDIO2 IN
OUT
IC101 Sel.
INPUT__A/B
IC202 VIN Y/C SEP.
COMB__SW
IC203 Sel.
IC204 ANALOG SW
DL201
DL
IC301 CHROMA DECODER
H.BLK
BGP
Q110-Q113 AMP
Q114-Q117 AMP
SW
Q205
YC__DET
INPUT__A/B
IC102 Sel.
INPUT__A/B

■ SCHEMATIC DIAGRAMS

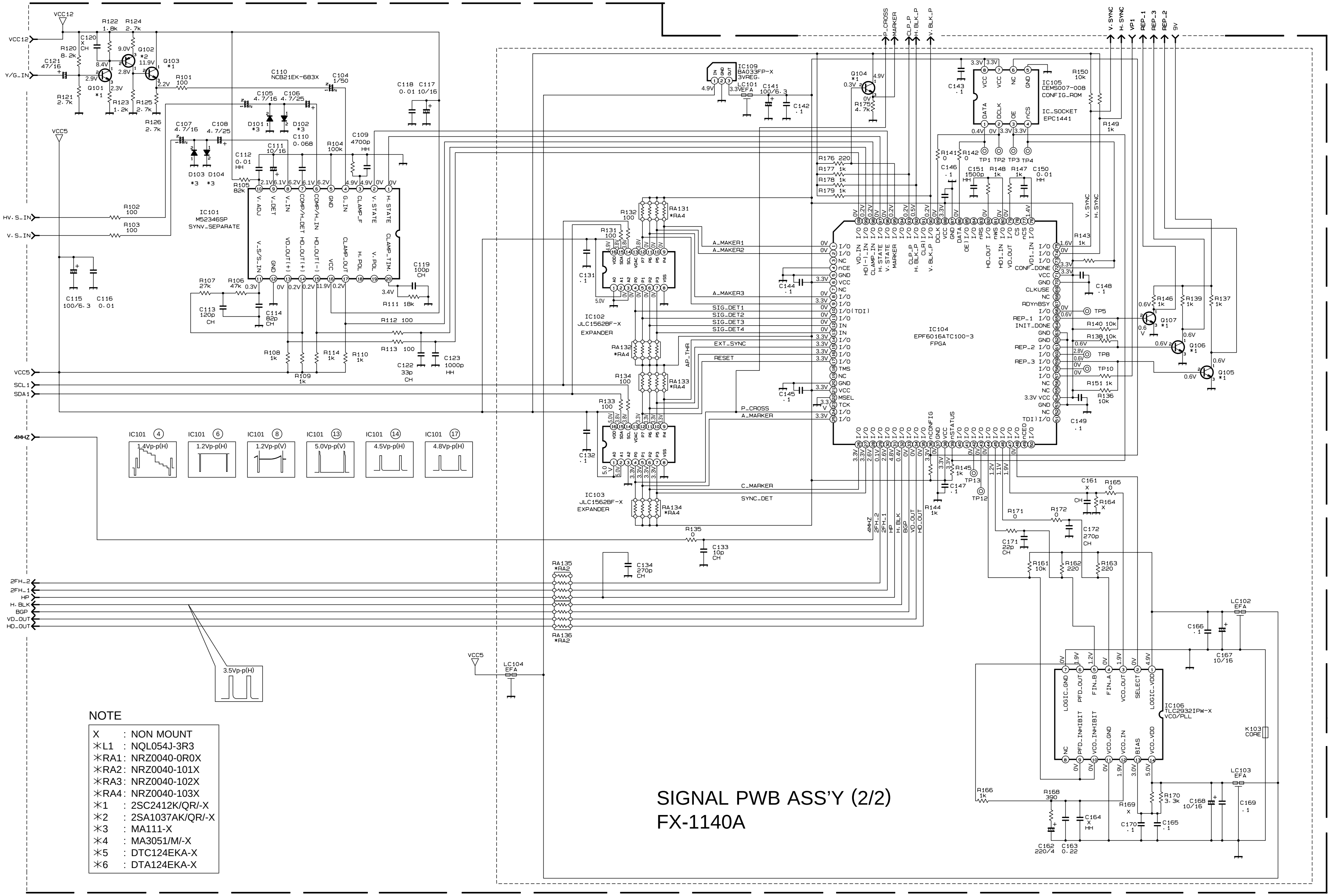
SIGNAL (1/2) AND TALLY PWB CIRCUIT DIAGRAMS


TALLY PWB ASS'Y
FX-7011A
D101–D110 → SML-211DT-X
SIGNAL PWB ASS'Y (1/2)
FX-1140A
IC601 TA1276AN
RGB_PROCESSOR
IC801
MB90F553APF
MICRO_PROCESSOR
IC802 MN1382/Q/-X
IC803 TC4053BF/N/-XE
IC804 M35045-075SP
OSD_PROCESSOR
IC805 MEMORY
IC602 M52055FP-X
IC604 M52055FP-X
IC606 M52055FP-X
IC603 TC4053BF/N/-XE
IC605 TC4053BF/N/-XE
IC607 TC4053BF/N/-XE
IC608 BA09FP-X
12V REG
FOR ADJUSTMENT CONNECTOR
TO FRONT CONTROL PWB CN00B
TO FRONT CONTROL PWB CN00F
TO FRONT VR PWB CN00A
TO REMOTE PWB CN00R
FOR ADJUSTMENT CONNECTOR
TO MOTHER PWB CN006
TO CRT SOCKET PWB CN00U
MICON
VIDEO

NOTE

X : NON MOUNT
＊1 : 2SC2412K/QR/-X
＊2 : 2SA1037AK/QR/-X
＊3 : MA111-X
＊4 : MA3051/M/-X
＊5 : DTC124EKA-X
＊6 : DTA124EKA-X
＊RA2 NRZ0040-101X
＊RA4 NRZ0040-103X

SIGNAL PWB CIRCUIT DIAGRAM (2/2)


VCC12
Y/G_IN
HV.S_IN
V.S_IN
VCC5
SCL1
SDA1
4MHZ
2FH_2
2FH_1
HP
H.BLK
BGP
VD_OUT
HD_OUT
IC101
M52346SP
SYNV.SEPARATE
IC102
JLC1562BF-X
EXPANDER
IC103
JLC1562BF-X
EXPANDER
IC104
EPF6016ATC100-3
FPGA
IC105
CEMS007-008
CONFIG_ROM
IC_SOCKET
EPC1441
IC106
TLC2932IPW-X
VCO/PLL
IC109
BA033FP-X
3VREG.
Q101
Q102
Q103
Q104
Q105
Q106
Q107
P_CROSS
MARKER
CLP_P
H.BLK_P
V.BLK_P
V.SYNC
H.SYNC
VP1
REP_1
REP_3
REP_2
9V
A_MAKER1
A_MAKER2
A_MAKER3
SIG_DET1
SIG_DET2
SIG_DET3
SIG_DET4
EXT_SYNC
RESET
P_CROSS
A_MARKER
C_MARKER
SYNC_DET
IC101 ④ 1.4Vp-p(H)
IC101 ⑥ 1.2Vp-p(H)
IC101 ⑧ 1.2Vp-p(V)
IC101 ⑬ 5.0Vp-p(V)
IC101 ⑭ 4.5Vp-p(H)
IC101 ⑰ 4.8Vp-p(H)
3.5Vp-p(H)
LC104 EFA
LC102 EFA
LC103 EFA
K103 CORE

NOTE

X	: NON MOUNT
✳L1	: NQL054J-3R3
✳RA1	: NRZ0040-0R0X
✳RA2	: NRZ0040-101X
✳RA3	: NRZ0040-102X
✳RA4	: NRZ0040-103X
✳1	: 2SC2412K/QR/-X
✳2	: 2SA1037AK/QR/-X
✳3	: MA111-X
✳4	: MA3051/M/-X
✳5	: DTC124EKA-X
✳6	: DTA124EKA-X

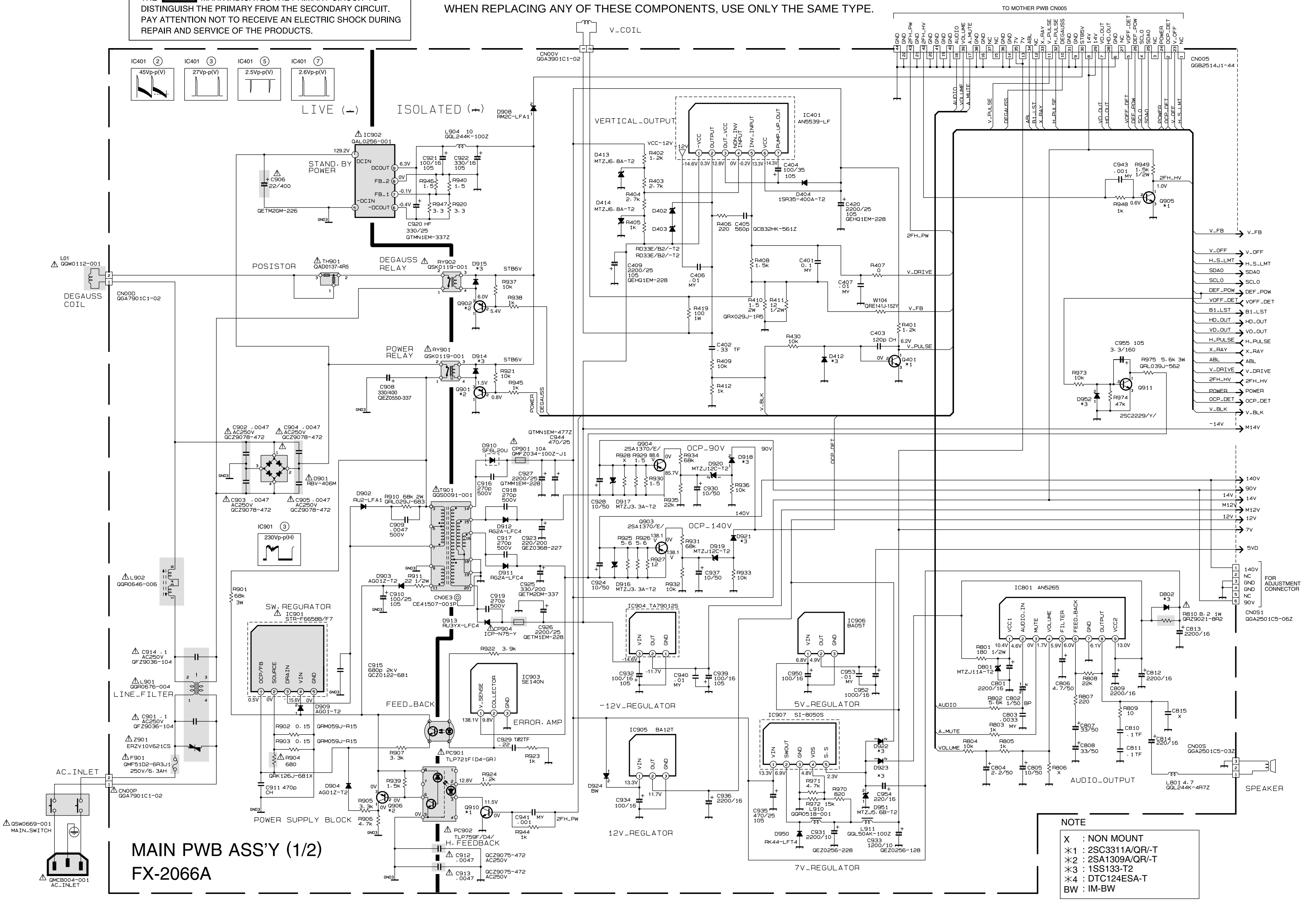
SIGNAL PWB ASS'Y (2/2)
FX-1140A

MAIN PWB CIRCUIT DIAGRAM (1/2)

CAUTION

THE ▭ MARK INDICATES THE PRIMARY CIRCUIT TO DISTINGUISH THE PRIMARY FROM THE SECONDARY CIRCUIT. PAY ATTENTION NOT TO RECEIVE AN ELECTRIC SHOCK DURING REPAIR AND SERVICE OF THE PRODUCTS.

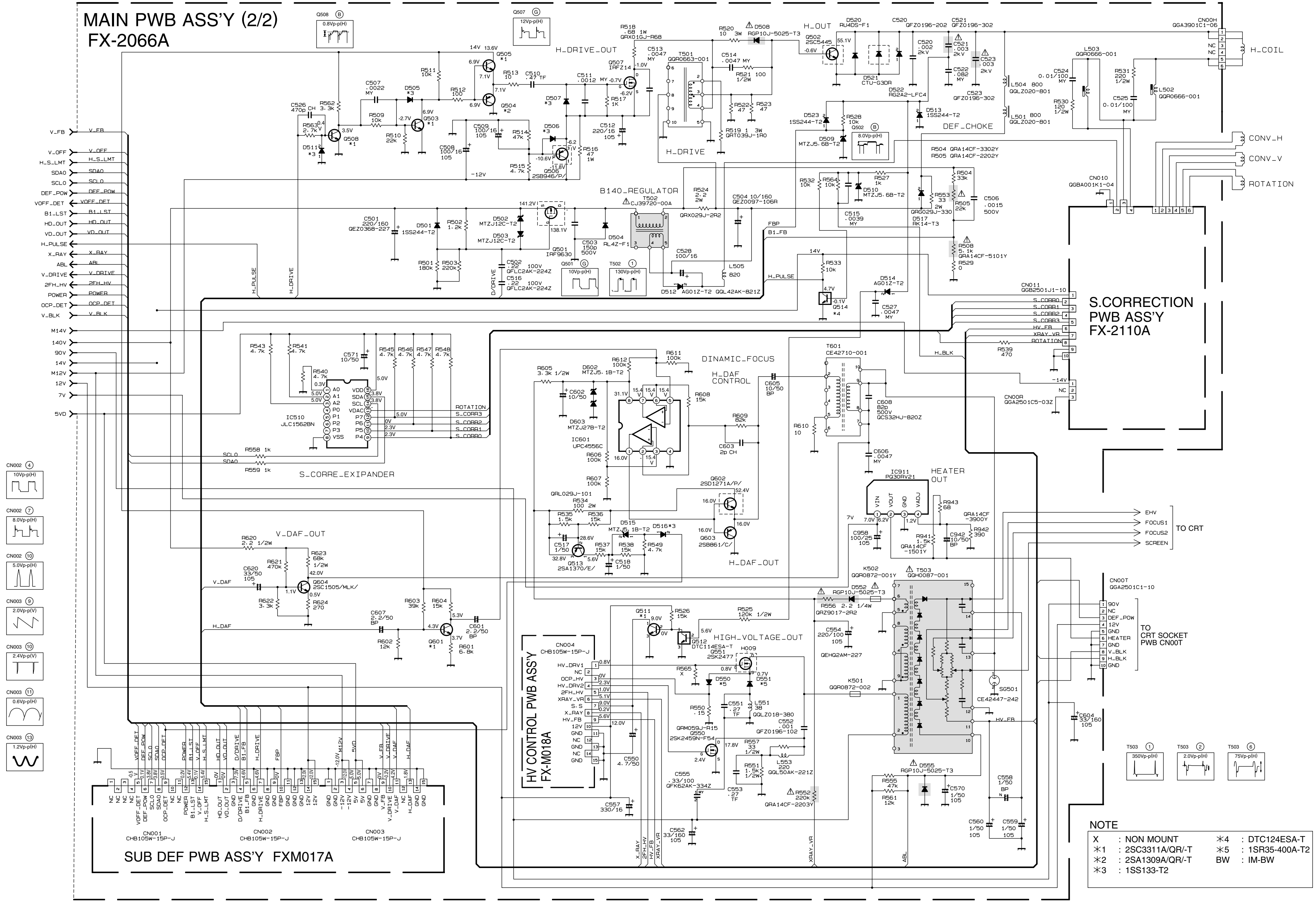
IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED WITH THE MARK ⚠ HAVE THE SPECIAL CHARACTERISTICS FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SAME TYPE.



TO MOTHER PWB CN005
CN005 QGB2514J1-44
V_COIL
CN00V QGA3901C1-02
LIVE (⊥)
ISOLATED (⊥)
IC401 ② 45Vp-p(V)
IC401 ③ 27Vp-p(V)
IC401 ⑤ 2.5Vp-p(V)
IC401 ⑦ 2.6Vp-p(V)
VERTICAL_OUTPUT
IC401 AN5539-LF
⚠IC902 QAL0256-001
STAND.BY POWER
L904 10 QQL244K-100Z
D908 RM2C-LFA1
POSISTOR
⚠TH901 QAD0137-4R5
DEGAUSS RELAY
RY902 QSK0119-001
POWER RELAY
⚠RY901 QSK0119-001
DEGAUSS COIL
CN00D QGA7901C1-02
L01 QQW0112-001
⚠D901 RBV-406M
⚠T901 QQS0091-001
IC901 ③ 230Vp-p(H)
⚠L902 QQR0646-006
SW.REGURATOR
⚠IC901 STR-F6658B/F7
OCP_90V
OCP_140V
IC904 TA79012S
-12V_REGULATOR
IC906 BA05T
5V_REGULATOR
IC903 SE140N
ERROR. AMP
FEED_BACK
⚠PC901 TLP721F(D4-GR)
⚠PC902 TLP759F/D4/
H.FEEDBACK
IC905 BA12T
12V_REGLATOR
IC907 SI-8050S
7V_REGULATOR
IC801 AN5265
AUDIO_OUTPUT
L801 4.7 QQL244K-4R7Z
CN00S QGA2501C5-03Z
SPEAKER
CN051 QGA2501C5-06Z
FOR ADJUSTMENT CONNECTOR
LINE_FILTER
⚠L901 QQR0676-004
⚠Z901 ERZV10V621CS
⚠F901 QMF51D2-6R3J1 250V/6.3AH
AC_INLET
CN00P QGA7901C1-02
⚠QSW0669-001 MAIN_SWITCH
⚠QMC8004-001 AC_INLET
POWER SUPPLY BLOCK
MAIN PWB ASS'Y (1/2)
FX-2066A
NOTE
X : NON MOUNT
*1 : 2SC3311A/QR/-T
*2 : 2SA1309A/QR/-T
*3 : 1SS133-T2
*4 : DTC124ESA-T
BW : IM-BW

MAIN PWB CIRCUIT DIAGRAM (2/2)

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED WITH THE MARK ⚠ HAVE THE SPECIAL CHARACTERISTICS FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SAME TYPE.

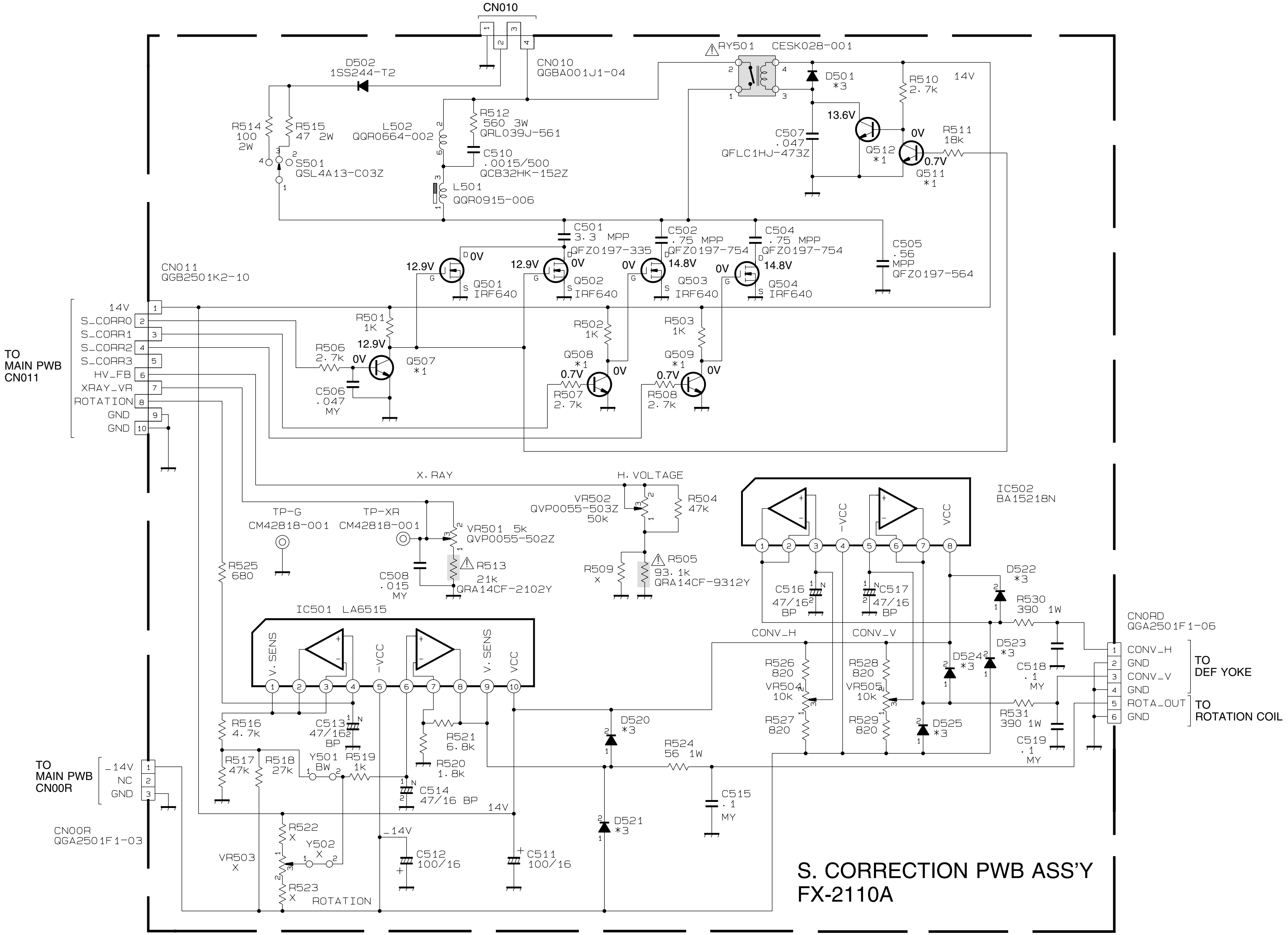

MAIN PWB ASS'Y (2/2)
FX-2066A
H_DRIVE_OUT
H_OUT
H_COIL
DEF_CHOKE
H_DRIVE
B140_REGULATOR
CONV_H
CONV_V
ROTATION
S.CORRECTION PWB ASS'Y FX-2110A
DINAMIC_FOCUS
H_DAF CONTROL
HEATER OUT
S_CORRE_EXIPANDER
V_DAF_OUT
H_DAF_OUT
HIGH_VOLTAGE_OUT
HV CONTROL PWB ASS'Y FX-M018A
SUB DEF PWB ASS'Y FXM017A
EHV
FOCUS1
FOCUS2
SCREEN
TO CRT
TO CRT SOCKET PWB CN00T
V_FB
V_OFF
H_S_LMT
SDA0
SCL0
DEF_POW
VOFF_DET
B1_LST
HD_OUT
VD_OUT
H_PULSE
X_RAY
ABL
V_DRIVE
2FH_HV
POWER
OCP_DET
V_BLK
M14V
140V
90V
14V
M12V
12V
7V
5VD
CN001 CHB105W-15P-J
CN002 CHB105W-15P-J
CN003 CHB105W-15P-J
CN004 CHB105W-15P-J
CN00H QGA3901C1-06
CN010 QGBA001K1-04
CN011 QGB2501J1-10
CN00R QGA2501C5-03Z
CN00T QGA2501C1-10
IC510 JLC1562BN
IC601 UPC4556C
IC911 PQ30RV21
T501 QQR0663-001
T502 CJ39720-00A
T503 QQH0087-001
T601 CE42710-001

NOTE

X : NON MOUNT		✻4	: DTC124ESA-T
✻1	: 2SC3311A/QR/-T	✻5	: 1SR35-400A-T2
✻2	: 2SA1309A/QR/-T	BW	: IM-BW
✻3	: 1SS133-T2		

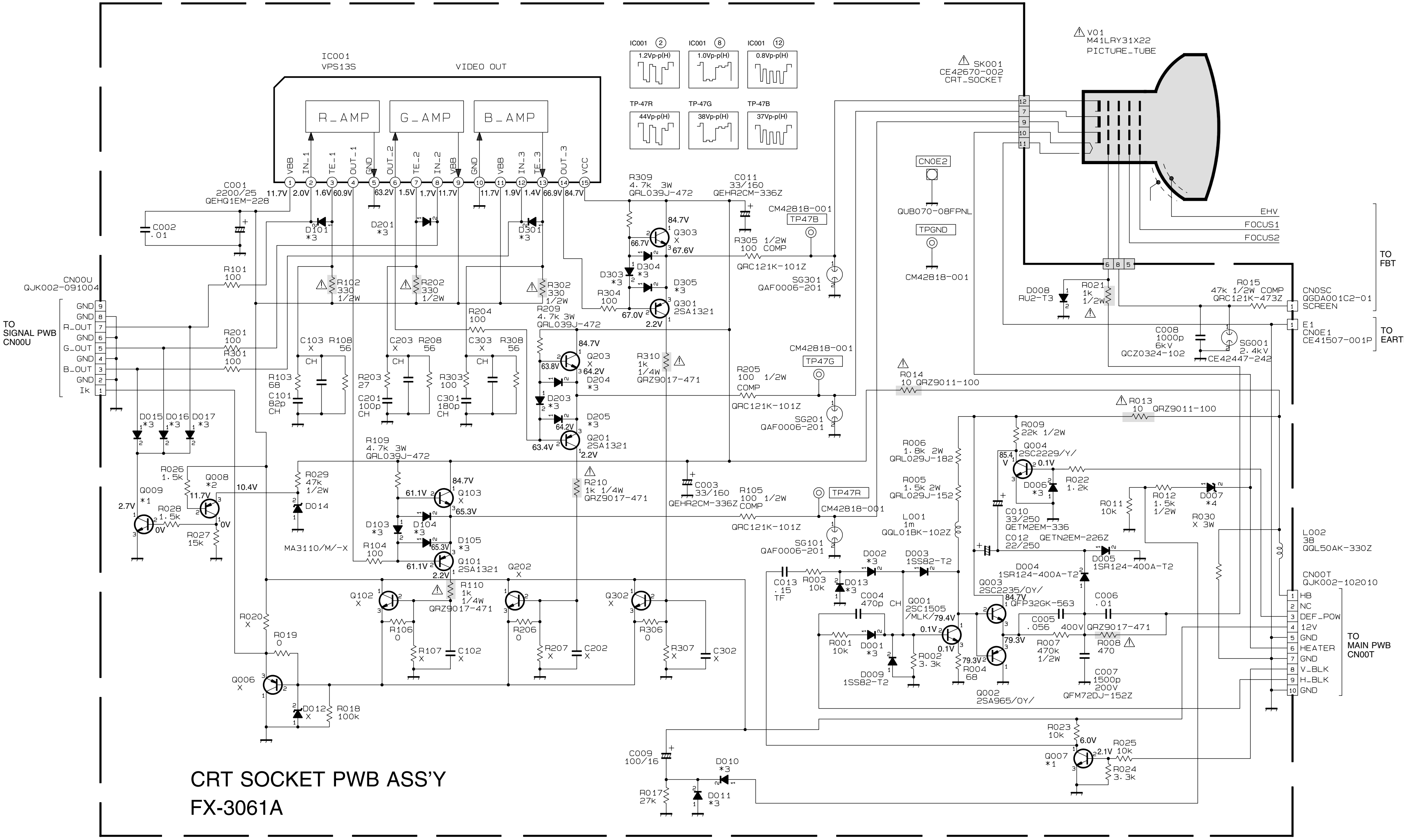
S. CORRECTION PWB CIRCUIT DIAGRAM

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED WITH THE MARK ⚠ HAVE THE SPECIAL CHARACTERISTICS FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SAME TYPE.


TO MAIN PWB
CN010
CN010
QGBA001J1-04
D502
1SS244-T2
R514
100
2W
R515
47 2W
S501
QSL4A13-C03Z
L502
QQR0664-002
R512
560 3W
QRL039J-561
C510
.0015/500
QCB32HK-152Z
L501
QQR0915-006
⚠RY501 CESK028-001
D501
*3
R510
2.7k
14V
C507
.047
QFLC1HJ-473Z
13.6V
Q512
*1
0V
0.7V
R511
18k
Q511
*1
C501
3.3 MPP
QFZ0197-335
C502
.75 MPP
QFZ0197-754
C504
.75 MPP
QFZ0197-754
C505
.56
MPP
QFZ0197-564
12.9V
0V
Q501
IRF640
12.9V
0V
Q502
IRF640
0V
14.8V
Q503
IRF640
0V
14.8V
Q504
IRF640
CN011
QGB2501K2-10
TO
MAIN PWB
CN011
14V
S_CORR0
S_CORR1
S_CORR2
S_CORR3
HV_FB
XRAY_VR
ROTATION
GND
GND
R501
1K
12.9V
R506
2.7k
0V
Q507
*1
C506
.047
MY
R502
1K
Q508
*1
0.7V
0V
R507
2.7k
R503
1K
Q509
*1
0.7V
0V
R508
2.7k
X.RAY
H.VOLTAGE
TP-G
CM42818-001
TP-XR
CM42818-001
VR501 5k
QVP0055-502Z
C508
.015
MY
⚠R513
21k
QRA14CF-2102Y
VR502
QVP0055-503Z
50k
R504
47k
R509
X
⚠R505
93.1k
QRA14CF-9312Y
R525
680
IC502
BA15218N
-VCC
VCC
C516
47/16
BP
C517
47/16
BP
D522
*3
R530
390 1W
CN0RD
QGA2501F1-06
CONV_H
CONV_V
D523
*3
D524
*3
C518
.1
MY
R526
820
VR504
10k
R527
820
R528
820
VR505
10k
R529
820
D525
*3
R531
390 1W
C519
.1
MY
CONV_H
GND
CONV_V
GND
ROTA_OUT
GND
TO
DEF YOKE
TO
ROTATION COIL
IC501 LA6515
V. SENS
-VCC
V. SENS
VCC
R516
4.7k
C513
47/16
BP
R521
6.8k
R520
1.8k
D520
*3
R524
56 1W
C515
.1
MY
TO
MAIN PWB
CN00R
-14V
NC
GND
CN00R
QGA2501F1-03
R517
47k
R518
27k
Y501
BW
R519
1k
C514
47/16 BP
14V
D521
*3
R522
X
Y502
X
VR503
X
R523
X
ROTATION
-14V
C512
100/16
C511
100/16
S. CORRECTION PWB ASS'Y
FX-2110A

CRT SOCKET PWB CIRCUIT DIAGRAM

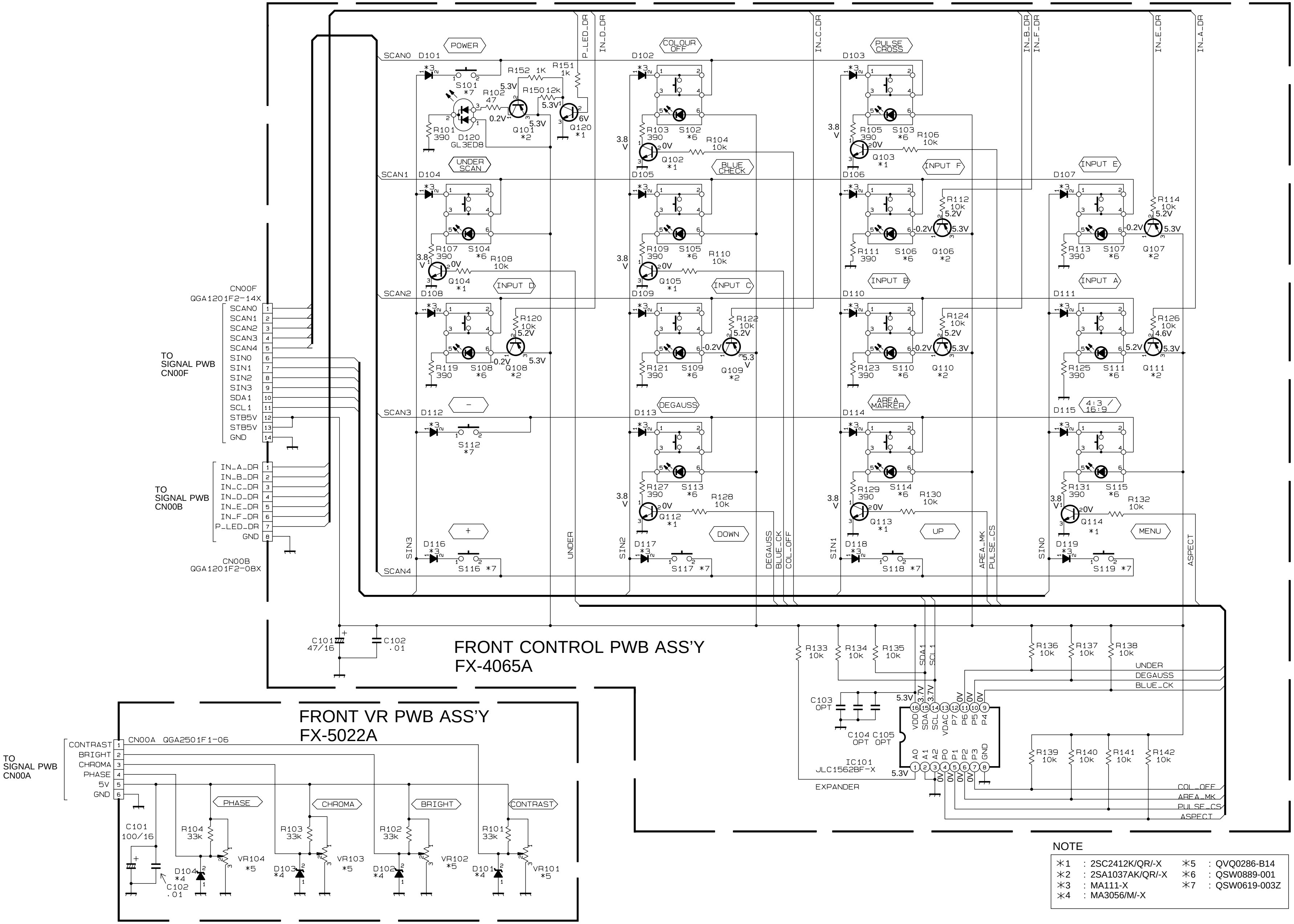
IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED WITH THE MARK ⚠ HAVE THE SPECIAL CHARACTERISTICS FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SAME TYPE.


IC001
VPS13S
VIDEO OUT
R_AMP
G_AMP
B_AMP
VBB
IN_1
TE_1
OUT_1
GND
OUT_2
TE_2
IN_2
VBB
GND
VBB
IN_3
TE_3
OUT_3
VCC
IC001 ② 1.2Vp-p(H)
IC001 ⑧ 1.0Vp-p(H)
IC001 ⑫ 0.8Vp-p(H)
TP-47R 44Vp-p(H)
TP-47G 38Vp-p(H)
TP-47B 37Vp-p(H)
⚠ V01
M41LRY31X22
PICTURE_TUBE
⚠ SK001
CE42670-002
CRT_SOCKET
C001
2200/25
QEHQ1EM-228
C002
.01
CN00U
QJK002-091004
TO SIGNAL PWB CN00U
GND
GND
R_OUT
GND
G_OUT
GND
B_OUT
GND
Ik
R101
100
R201
100
R301
100
D101
*3
D201
*3
D301
*3
R102
330
1/2W
R202
330
1/2W
R302
330
1/2W
R309
4.7k 3W
QRL039J-472
C011
33/160
QEHR2CM-336Z
CM42818-001
TP47B
Q303
X
D303
*3
D304
*3
D305
*3
R304
100
Q301
2SA1321
R305 1/2W
100 COMP
QRC121K-101Z
SG301
QAF0006-201
CN0E2
QUB070-08FPNL
TPGND
CM42818-001
R204
100
R209
4.7k 3W
QRL039J-472
C103 R108
X 56
C203 R208
X 56
C303 R308
X 56
R103
68
C101
82p
CH
R203
27
C201
100p
CH
R303
100
C301
180p
CH
Q203
X
D204
*3
D203
*3
D205
*3
Q201
2SA1321
R310
1k
1/4W
QRZ9017-471
CM42818-001
TP47G
R205
100 1/2W
COMP
QRC121K-101Z
SG201
QAF0006-201
D015 D016 D017
*3 *3 *3
R026
1.5k
Q008
*2
Q009
*1
R028
1.5k
R027
15k
R029
47k
1/2W
D014
MA3110/M/-X
R109
4.7k 3W
QRL039J-472
Q103
X
D103
*3
D104
*3
D105
*3
R104
100
Q101
2SA1321
R210
1k 1/4W
QRZ9017-471
C003
33/160
QEHR2CM-336Z
R105
100 1/2W
COMP
QRC121K-101Z
CM42818-001
TP47R
SG101
QAF0006-201
Q102
X
Q202
X
Q302
X
R110
1k
1/4W
QRZ9017-471
R106
0
R107
X
C102
X
R206
0
R207
X
C202
X
R306
0
R307
X
C302
X
R020
X
R019
0
Q006
X
D012
X
R018
100k
C009
100/16
D010
*3
R017
27k
D011
*3
CRT SOCKET PWB ASS'Y
FX-3061A
EHV
FOCUS1
FOCUS2
TO FBT
D008
RU2-T3
R021
1k
1/2W
R015
47k 1/2W COMP
QRC121K-473Z
CN0SC
QGDA001C2-01
SCREEN
E1
CN0E1
CE41507-001P
TO EARTH
C008
1000p
6kV
QCZ0324-102
SG001
2.4kV
CE42447-242
⚠ R014
10 QRZ9011-100
⚠ R013
10 QRZ9011-100
R009
22k 1/2W
Q004
2SC2229/Y/
R006
1.8k 2W
QRL029J-182
R005
1.5k 2W
QRL029J-152
D006
*3
R022
1.2k
C010
33/250
QETM2EM-336
C012 QETN2EM-226Z
22/250
R011
10k
R012
1.5k
1/2W
D007
*4
R030
X 3W
L001
1m
QQL01BK-102Z
L002
38
QQL50AK-330Z
D002
*3
D003
1SS82-T2
D005
1SR124-400A-T2
D004
1SR124-400A-T2
C013
.15
TF
R003
10k
D013
*3
C004
470p CH
Q001
2SC1505
/MLK/
Q003
2SC2235/OY/
GFP32GK-563
C006
.01
C005
.056 400V
QRZ9017-471
R001
10k
D001
*3
D009
1SS82-T2
R002
3.3k
R004
68
R007
470k
1/2W
R008
470
C007
1500p
200V
QFM72DJ-152Z
Q002
2SA965/OY/
CN00T
QJK002-102010
HB
NC
DEF_POW
12V
GND
HEATER
GND
V_BLK
H_BLK
GND
TO MAIN PWB CN00T
R023
10k
R025
10k
Q007
*1
R024
3.3k

NOTE

X	: NON MOUNT	*4	: MA3051/M/-X
*1	: 2SC2412K/QR/-X	*5	: DTC124EKA-X
*2	: 2SA1037AK/QR/-X	*6	: DTA124EKA-X
*3	: MA111-X		

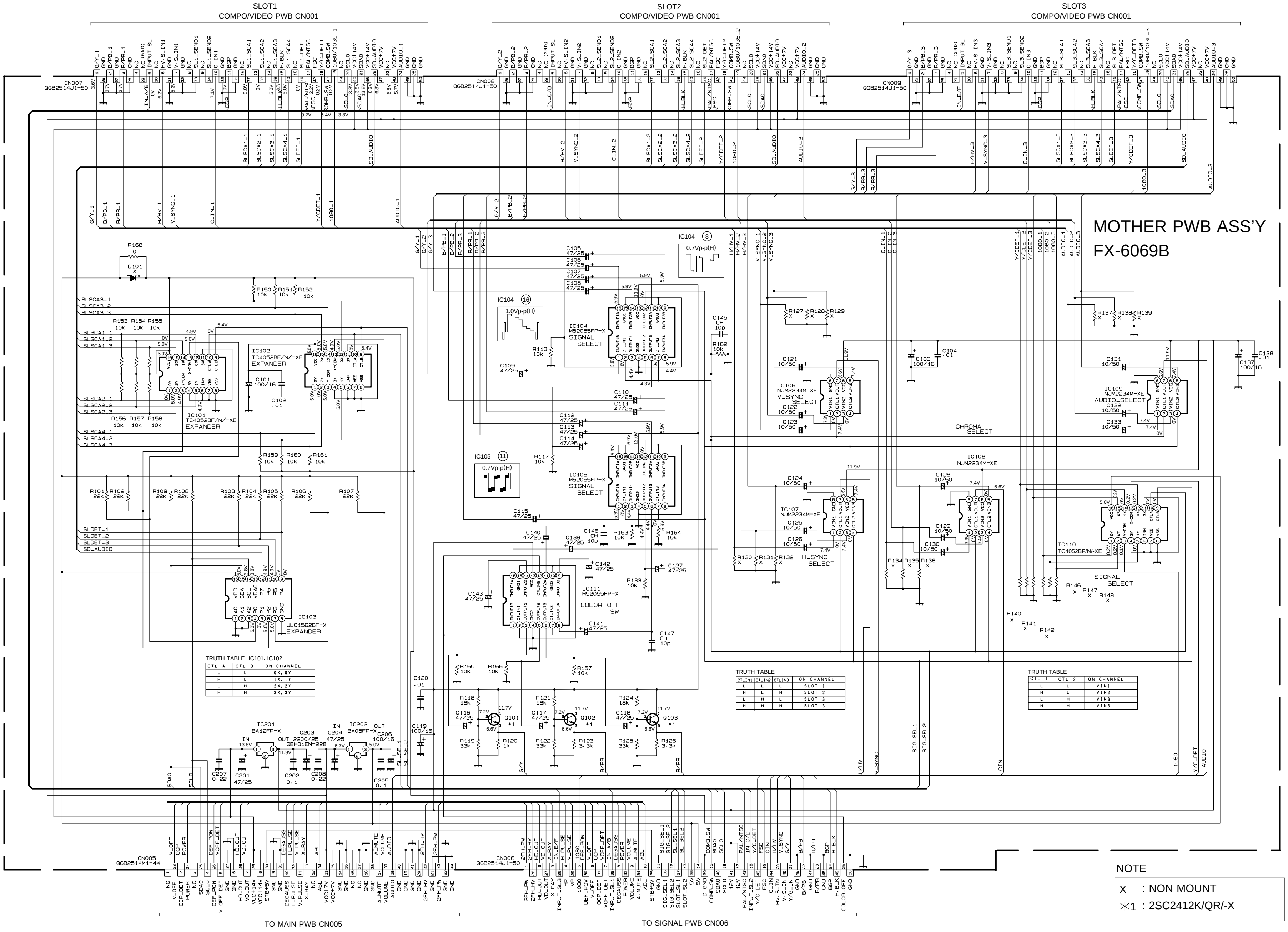
FRONT CONTROL AND FRONT VR PWB CIRCUIT DIAGRAMS


FRONT CONTROL PWB ASS'Y
FX-4065A
FRONT VR PWB ASS'Y
FX-5022A
TO SIGNAL PWB CN00F
CN00F QGA1201F2-14X
SCAN0
SCAN1
SCAN2
SCAN3
SCAN4
SIN0
SIN1
SIN2
SIN3
SDA1
SCL1
STB5V
STB5V
GND
TO SIGNAL PWB CN00B
IN_A_DR
IN_B_DR
IN_C_DR
IN_D_DR
IN_E_DR
IN_F_DR
P_LED_DR
GND
CN00B QGA1201F2-08X
POWER
COLOUR OFF
PULSE CROSS
UNDER SCAN
BLUE CHECK
INPUT F
INPUT E
INPUT D
INPUT C
INPUT B
INPUT A
-
DEGAUSS
AREA MARKER
4:3 / 16:9
+
DOWN
UP
MENU
D101 S101 *7 R152 1K R151 1K R102 47 R150 12k Q101 *2 Q120 *1 D120 GL3ED8 R101 390
5.3V 0.2V 5.3V 5.3V 6V 3.8V 0V 5.2V
D102 S102 *6 R103 390 Q102 *1 R104 10k
D103 S103 *6 R105 390 Q103 *1 R106 10k
D104 S104 *6 R107 390 Q104 *1 R108 10k
D105 S105 *6 R109 390 Q105 *1 R110 10k
D106 S106 *6 R111 390 Q106 *2 R112 10k
D107 S107 *6 R113 390 Q107 *2 R114 10k
D108 S108 *6 R119 390 Q108 *2 R120 10k
D109 S109 *6 R121 390 Q109 *2 R122 10k
D110 S110 *6 R123 390 Q110 *2 R124 10k
D111 S111 *6 R125 390 Q111 *2 R126 10k
D112 S112 *7
D113 S113 *6 R127 390 Q112 *1 R128 10k
D114 S114 *6 R129 390 Q113 *1 R130 10k
D115 S115 *6 R131 390 Q114 *1 R132 10k
D116 S116 *7
D117 S117 *7
D118 S118 *7
D119 S119 *7
UNDER DEGAUSS BLUE_CK COL_OFF AREA_MK PULSE_CS ASPECT
C101 47/16 C102 .01
R133 10k R134 10k R135 10k R136 10k R137 10k R138 10k
R139 10k R140 10k R141 10k R142 10k
C103 OPT C104 OPT C105 OPT
IC101 JLC1562BF-X EXPANDER
VDD SDA SCL VDAC P7 P6 P5 P4
A0 A1 A2 P0 P1 P2 P3 GND
5.3V 3.7V 3.7V 0V 0V 0V 0V 0V
TO SIGNAL PWB CN00A
CN00A QGA2501F1-06
CONTRAST BRIGHT CHROMA PHASE 5V GND
PHASE CHROMA BRIGHT CONTRAST
R104 33k R103 33k R102 33k R101 33k
VR104 *5 VR103 *5 VR102 *5 VR101 *5
D104 *4 D103 *4 D102 *4 D101 *4
C101 100/16 C102 .01

NOTE

✻1	: 2SC2412K/QR/-X	✻5	: QVQ0286-B14
✻2	: 2SA1037AK/QR/-X	✻6	: QSW0889-001
✻3	: MA111-X	✻7	: QSW0619-003Z
✻4	: MA3056/M/-X		

MOTHER PWB CIRCUIT DIAGRAM


MOTHER PWB ASS'Y
FX-6069B
SLOT1
COMPO/VIDEO PWB CN001
SLOT2
COMPO/VIDEO PWB CN001
SLOT3
COMPO/VIDEO PWB CN001
CN007
QGB2514J1-50
CN008
QGB2514J1-50
CN009
QGB2514J1-50
IC101
TC4052BF/N/-XE
EXPANDER
IC102
TC4052BF/N/-XE
EXPANDER
IC103
JLC1562BF-X
EXPANDER
IC104
M52055FP-X
SIGNAL
SELECT
IC104 ⑧
0.7Vp-p(H)
IC104 ⑯
1.0Vp-p(H)
IC105
M52055FP-X
SIGNAL
SELECT
IC105 ⑪
0.7Vp-p(H)
IC106
NJM2234M-XE
V_SYNC
SELECT
IC107
NJM2234M-XE
H_SYNC
SELECT
IC108
NJM2234M-XE
CHROMA
SELECT
IC109
NJM2234M-XE
AUDIO_SELECT
IC110
TC4052BF/N/-XE
SIGNAL
SELECT
IC111
M52055FP-X
COLOR OFF
SW
IC201
BA12FP-X
IC202
BA05FP-X
Q101
Q102
Q103
CN005
QGB2514M1-44
CN006
QGB2514J1-50
TO MAIN PWB CN005
TO SIGNAL PWB CN006

TRUTH TABLE IC101, IC102

CTL A	CTL B	ON CHANNEL
L	L	0X, 0Y
H	L	1X, 1Y
L	H	2X, 2Y
H	H	3X, 3Y

TRUTH TABLE

CTLIN1	CTLIN2	CTLIN3	ON CHANNEL
L	L	L	SLOT 1
H	L	H	SLOT 2
L	H	L	SLOT 3
H	H	H	SLOT 3

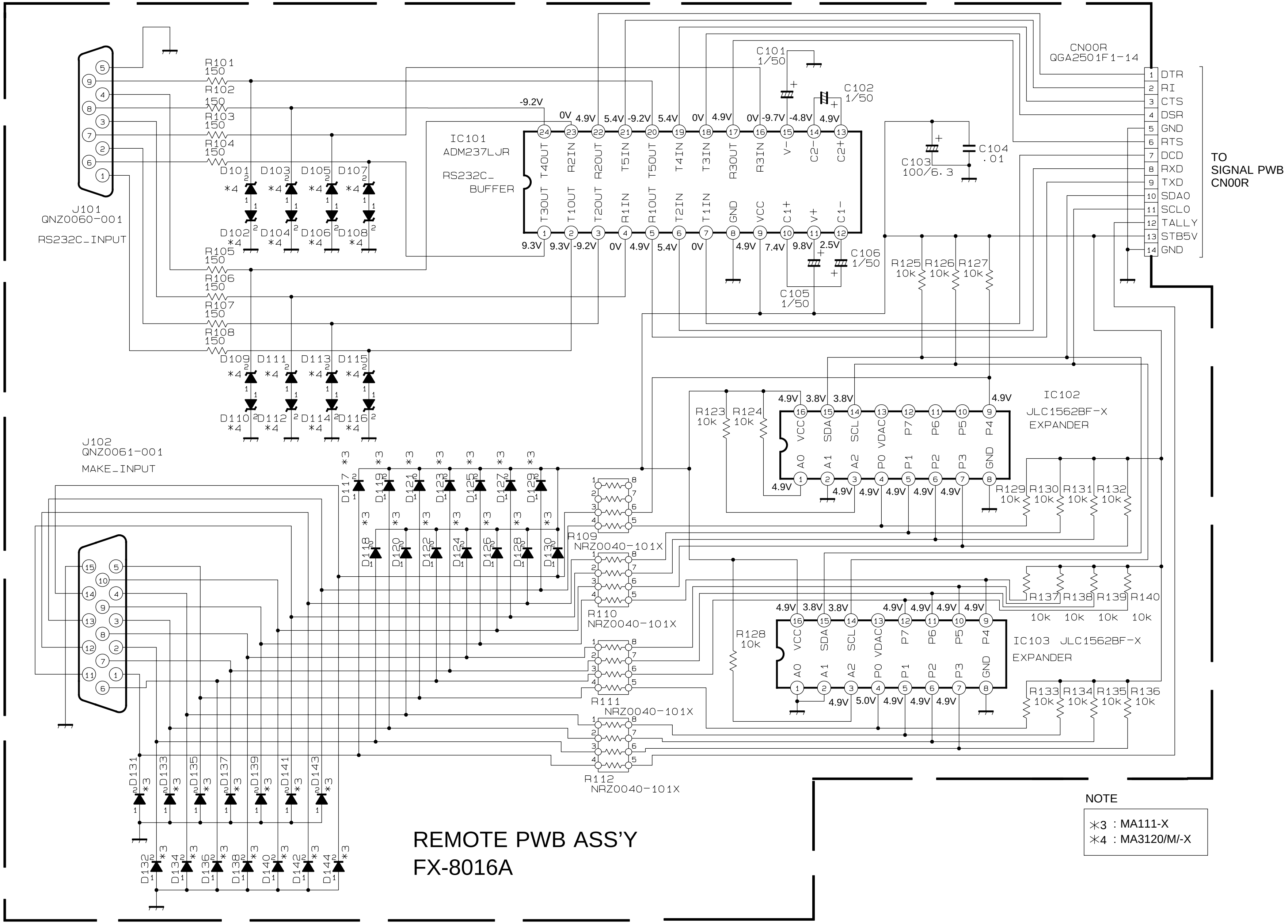
TRUTH TABLE

CTL 1	CTL 2	ON CHANNEL
L	L	VIN1
H	L	VIN2
L	H	VIN3
H	H	VIN3

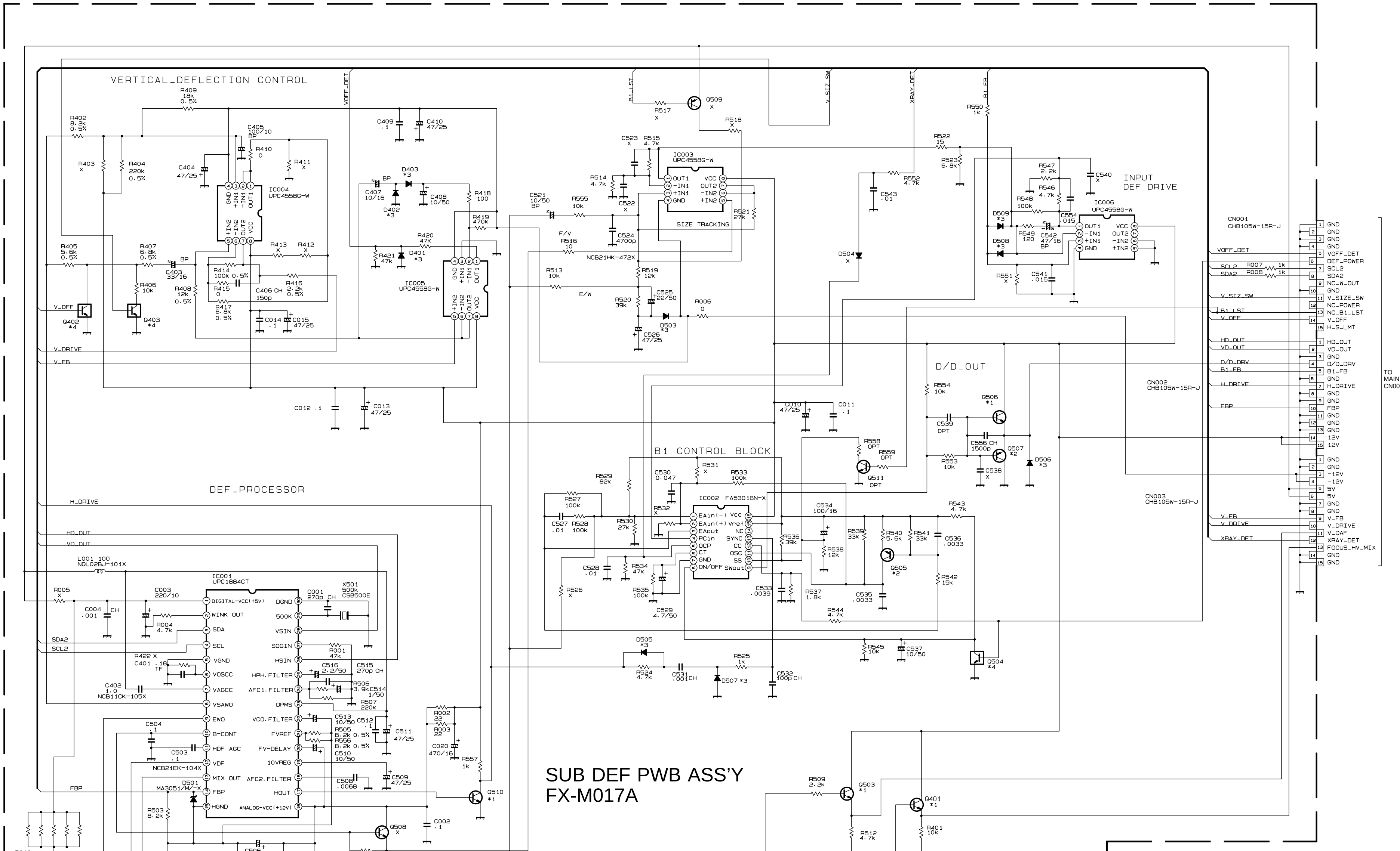
NOTE

X	: NON MOUNT
＊1	: 2SC2412K/QR/-X

REMOTE PWB CIRCUIT DIAGRAM


J101
QNZ0060-001
RS232C_INPUT
R101 150
R102 150
R103 150
R104 150
R105 150
R106 150
R107 150
R108 150
D101 D102 D103 D104 D105 D106 D107 D108
D109 D110 D111 D112 D113 D114 D115 D116
*4
IC101
ADM237LJR
RS232C_
BUFFER
T4OUT R2IN R2OUT T5IN T5OUT T4IN T3IN R3OUT R3IN V- C2- C2+
T3OUT T1OUT T2OUT R1IN R1OUT T2IN T1IN GND VCC C1+ V+ C1-
-9.2V 0V 4.9V 5.4V -9.2V 5.4V 0V 4.9V 0V -9.7V -4.8V 4.9V
9.3V 9.3V -9.2V 0V 4.9V 5.4V 0V 4.9V 7.4V 9.8V 2.5V
C101 1/50
C102 1/50
C103 100/6.3
C104 .01
C105 1/50
C106 1/50
CN00R
QGA2501F1-14
1 DTR
2 RI
3 CTS
4 DSR
5 GND
6 RTS
7 DCD
8 RXD
9 TXD
10 SDA0
11 SCL0
12 TALLY
13 STB5V
14 GND
TO
SIGNAL PWB
CN00R
R125 10k R126 10k R127 10k
IC102
JLC1562BF-X
EXPANDER
VCC SDA SCL VDAC P7 P6 P5 P4
A0 A1 A2 P0 P1 P2 P3 GND
4.9V 3.8V 3.8V 4.9V
4.9V 4.9V 4.9V 4.9V 4.9V 4.9V
R123 10k R124 10k
R129 10k R130 10k R131 10k R132 10k
J102
QNZ0061-001
MAKE_INPUT
D117 D118 D119 D120 D121 D122 D123 D124 D125 D126 D127 D128 D129 D130
*3
R109
NRZ0040-101X
R110
NRZ0040-101X
R111
NRZ0040-101X
R112
NRZ0040-101X
R137 R138 R139 R140
10k 10k 10k 10k
IC103 JLC1562BF-X
EXPANDER
4.9V 3.8V 3.8V 4.9V 4.9V 4.9V 4.9V
4.9V 5.0V 4.9V 4.9V 4.9V
R128 10k
R133 10k R134 10k R135 10k R136 10k
D131 D132 D133 D134 D135 D136 D137 D138 D139 D140 D141 D142 D143 D144
REMOTE PWB ASS’Y
FX-8016A
NOTE
⁎3 : MA111-X
⁎4 : MA3120/M/-X

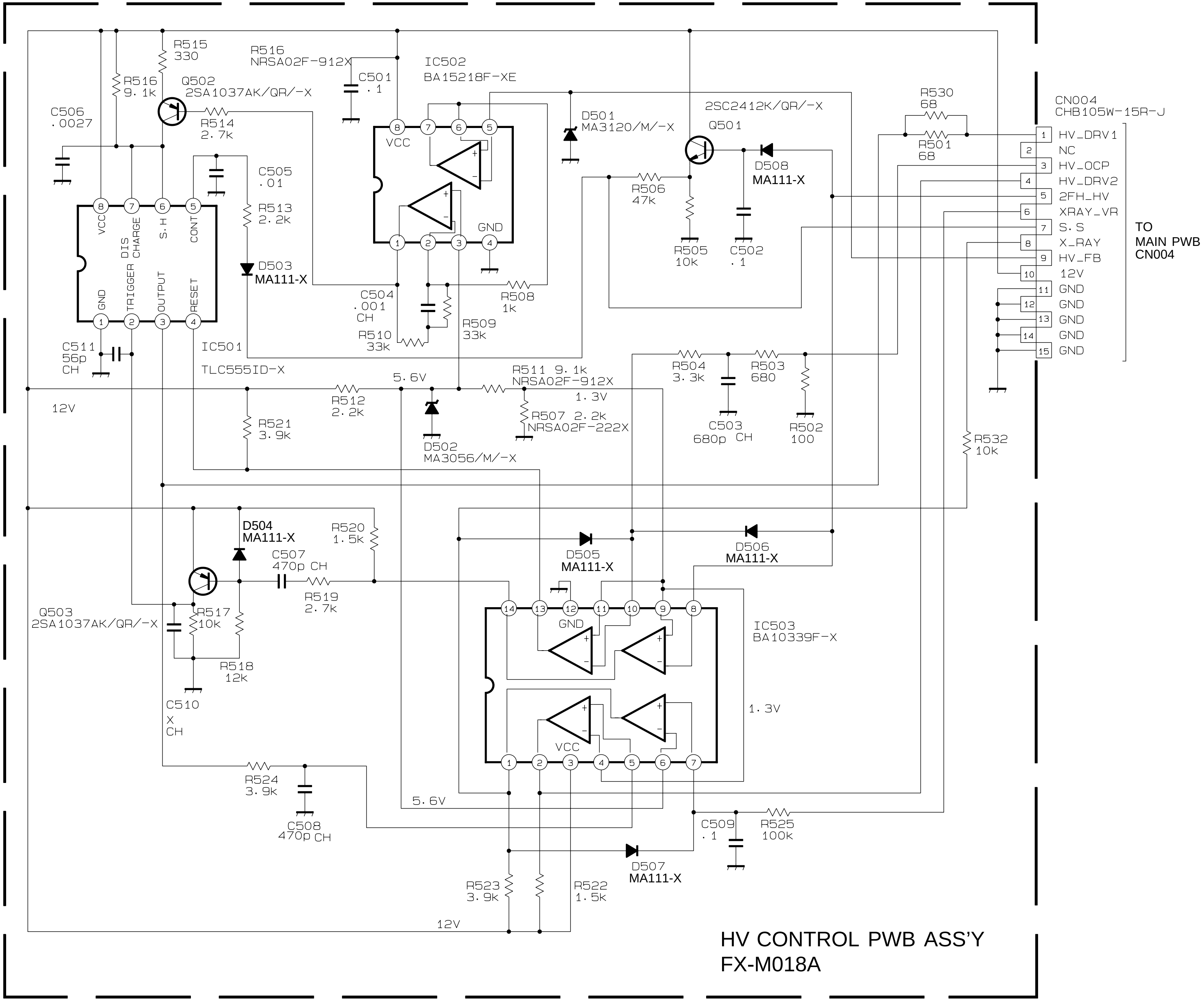
SUB DEF PWB CIRCUIT DIAGRAM


VERTICAL_DEFLECTION CONTROL
INPUT DEF DRIVE
SIZE TRACKING
D/D_OUT
B1 CONTROL BLOCK
DEF_PROCESSOR
IC001 UPC1884CT
IC002 FA5301BN-X
IC003 UPC4558G-W
IC004 UPC4558G-W
IC005 UPC4558G-W
IC006 UPC4558G-W
CN001 CHB105W-15R-J
CN002 CHB105W-15R-J
CN003 CHB105W-15R-J
TO MAIN PWB CN001-CN003
SUB DEF PWB ASS'Y
FX-M017A

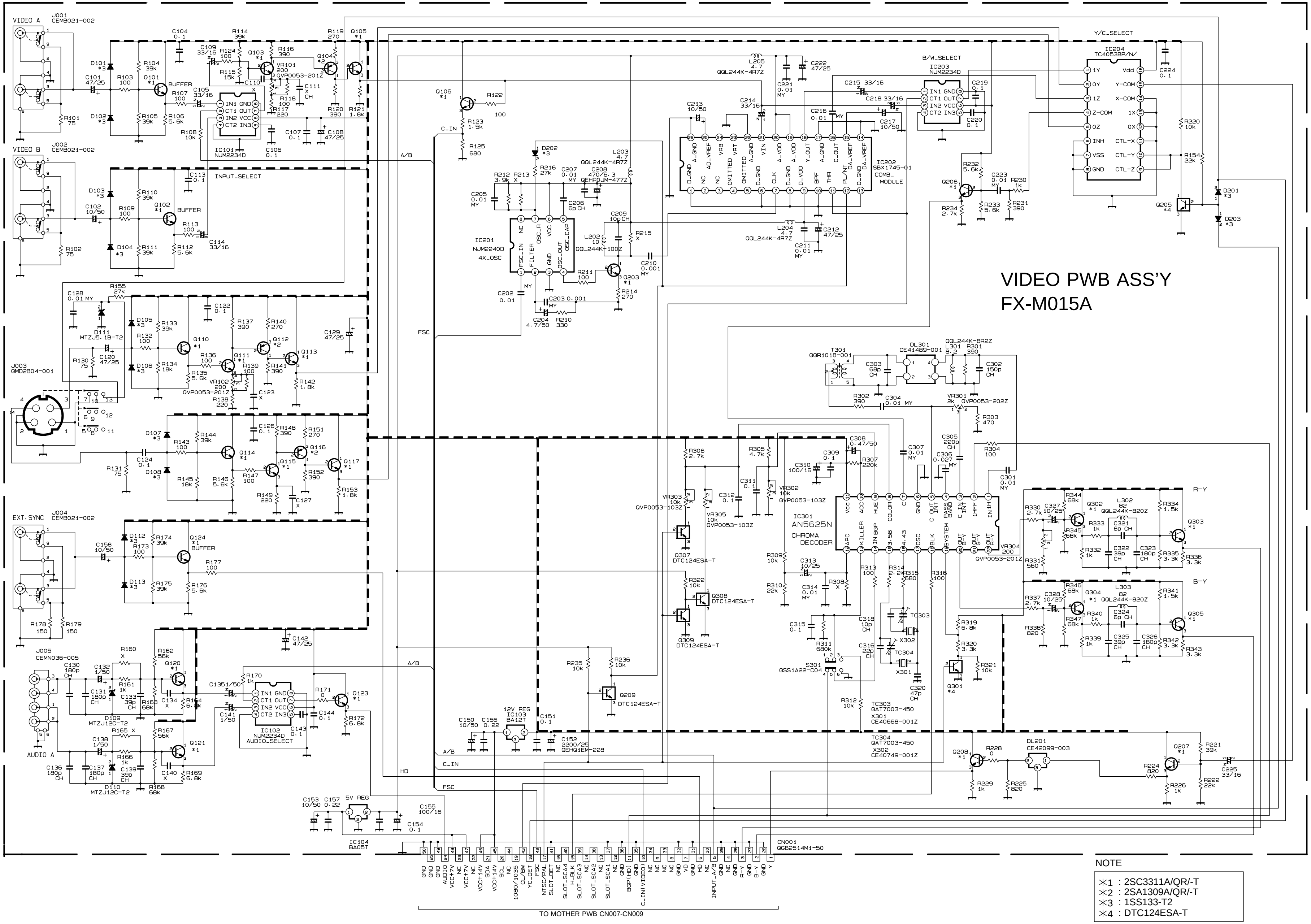
NOTE

X : MON MOUNT
⚹1 : 2SC2412K/QR/-X
⚹2 : 2SA1037AK/QR/-X
⚹3 : MA153A-X
⚹4 : DTC363TK-X
⚹5 : DTA144TKA-X

HV CONTROL PWB CIRCUIT DIAGRAM


R515
330
R516
NRSA02F-912X
C501
.1
IC502
BA15218F-XE
R516
9.1k
Q502
2SA1037AK/QR/-X
C506
.0027
R514
2.7k
VCC
GND
D501
MA3120/M/-X
2SC2412K/QR/-X
Q501
R530
68
R501
68
CN004
CHB105W-15R-J
1 HV_DRV1
2 NC
3 HV_OCP
4 HV_DRV2
5 2FH_HV
6 XRAY_VR
7 S.S
8 X_RAY
9 HV_FB
10 12V
11 GND
12 GND
13 GND
14 GND
15 GND
TO
MAIN PWB
CN004
C505
.01
R513
2.2k
D503
MA111-X
D508
MA111-X
R506
47k
R505
10k
C502
.1
VCC
DIS
CHARGE
TRIGGER
S.H
OUTPUT
CONT
RESET
GND
C504
.001
CH
R508
1k
R510
33k
R509
33k
C511
56p
CH
IC501
TLC555ID-X
5.6V
R512
2.2k
R511 9.1k
NRSA02F-912X
1.3V
R504
3.3k
R503
680
C503
680p CH
R502
100
12V
R521
3.9k
D502
MA3056/M/-X
R507 2.2k
NRSA02F-222X
R532
10k
D504
MA111-X
R520
1.5k
C507
470p CH
R519
2.7k
D505
MA111-X
D506
MA111-X
Q503
2SA1037AK/QR/-X
R517
10k
R518
12k
GND
IC503
BA10339F-X
1.3V
C510
X
CH
VCC
R524
3.9k
C508
470p CH
5.6V
C509
.1
R525
100k
D507
MA111-X
R523
3.9k
R522
1.5k
12V
HV CONTROL PWB ASS'Y
FX-M018A

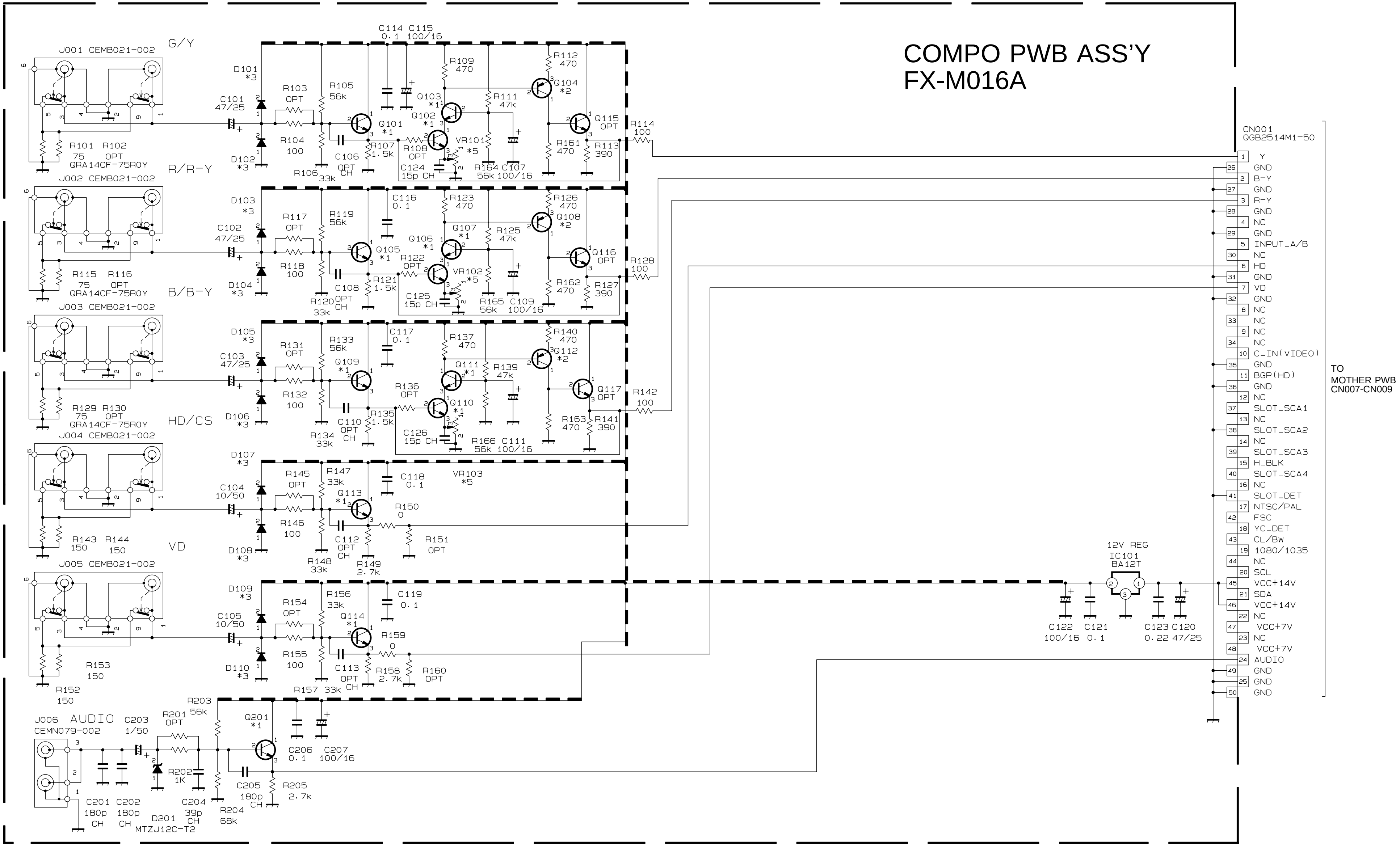
VIDEO PWB CIRCUIT DIAGRAM (BT-YA701P) [OPTION]


VIDEO PWB ASS'Y
FX-M015A
VIDEO A
J001 CEMB021-002
VIDEO B
J002 CEMB021-002
J003 QMD2B04-001
EXT.SYNC
J004 CEMB021-002
J005 CEMN036-005
AUDIO A
IC101 NJM2234D
INPUT_SELECT
IC102 NJM2234D AUDIO_SELECT
IC103 BA12T 12V REG
IC104 BA05T 5V REG
IC201 NJM2240D 4X_OSC
IC202 SBX1745-01 COMB. MODULE
IC203 NJM2234D B/W_SELECT
IC204 TC4053BP/N/ Y/C_SELECT
IC301 AN5625N CHROMA DECODER
T301 QQR1018-001
DL301 CE41489-001
DL201 CE42099-003
S301 QSS1A22-C04
TC303 QAT7003-450
X301 CE40668-001Z
TC304 QAT7003-450
X302 CE40749-001Z
BUFFER
Q101 Q102 Q103 Q104 Q105 Q106 Q110 Q111 Q112 Q113 Q114 Q115 Q116 Q117 Q120 Q121 Q123 Q124
Q203 Q205 Q206 Q207 Q208 Q209
Q301 Q302 Q303 Q304 Q305 Q307 Q308 Q309
DTC124ESA-T
R-Y
B-Y
A/B
C_IN
FSC
HD
CN001 QGB2514M1-50
GND GND GND AUDIO_L VCC+7V NC VCC+7V NC VCC+14V SDA VCC+14V SCL NC 1080/1035 CL/BW FSC NTSC/PAL SLOT_DET NC SLOT_SCA4 H_BLK SLOT_SCA3 NC SLOT_SCA2 NC SLOT_SCA1 NC GND BGP(HD) GND C_IN(VIDEO) NC NC GND VD GND HD GND INPUT_A/B GND NC GND R-Y GND B-Y GND Y
TO MOTHER PWB CN007-CN009

NOTE

＊1	: 2SC3311A/QR/-T
＊2	: 2SA1309A/QR/-T
＊3	: 1SS133-T2
＊4	: DTC124ESA-T

COMPO PWB CIRCUIT DIAGRAM (BT-YA702P) [OPTION]


COMPO PWB ASS'Y
FX-M016A
J001 CEMB021-002
G/Y
J002 CEMB021-002
R/R-Y
J003 CEMB021-002
B/B-Y
J004 CEMB021-002
HD/CS
J005 CEMB021-002
VD
QRA14CF-75R0Y
R101 75
R102 OPT
R115 75
R116 OPT
R129 75
R130 OPT
R143 150
R144 150
R152 150
R153 150
C101 47/25
C102 47/25
C103 47/25
C104 10/50
C105 10/50
D101 *3
D102 *3
D103 *3
D104 *3
D105 *3
D106 *3
D107 *3
D108 *3
D109 *3
D110 *3
R103 OPT
R104 100
R105 56k
R106 33k
C106 OPT CH
R107 1.5k
R108 OPT
C124 15p CH
C114 0.1
C115 100/16
R109 470
R111 47k
R112 470
R161 470
R113 390
R114 100
R164 56k
C107 100/16
VR101 *5
Q101 *1
Q102 *1
Q103 *1
Q104 *2
Q115 OPT
R117 OPT
R118 100
R119 56k
R120 33k
C108 OPT CH
R121 1.5k
R122 OPT
C125 15p CH
C116 0.1
R123 470
R125 47k
R126 470
R162 470
R127 390
R128 100
R165 56k
C109 100/16
VR102 *5
Q105 *1
Q106 *1
Q107 *1
Q108 *2
Q116 OPT
R131 OPT
R132 100
R133 56k
R134 33k
C110 OPT CH
R135 1.5k
R136 OPT
C126 15p CH
C117 0.1
R137 470
R139 47k
R140 470
R163 470
R141 390
R142 100
R166 56k
C111 100/16
Q109 *1
Q110 *1
Q111 *1
Q112 *2
Q117 OPT
R145 OPT
R146 100
R147 33k
R148 33k
C112 OPT CH
R149 2.7k
R150 0
R151 OPT
C118 0.1
VR103 *5
Q113 *1
R154 OPT
R155 100
R156 33k
R157 33k
C113 OPT CH
R158 2.7k
R159 0
R160 OPT
C119 0.1
Q114 *1
J006 AUDIO
CEMN079-002
C201 180p CH
C202 180p CH
C203 1/50
D201 MTZJ12C-T2
R201 OPT
R202 1K
C204 39p CH
R203 56k
R204 68k
Q201 *1
C205 180p CH
R205 2.7k
C206 0.1
C207 100/16
12V REG
IC101
BA12T
C122 100/16
C121 0.1
C123 0.22
C120 47/25
CN001
QGB2514M1-50
1 Y
26 GND
2 B-Y
27 GND
3 R-Y
28 GND
4 NC
29 GND
5 INPUT_A/B
30 NC
6 HD
31 GND
7 VD
32 GND
8 NC
33 NC
9 NC
34 NC
10 C_IN(VIDEO)
35 GND
11 BGP(HD)
36 GND
12 NC
37 SLOT_SCA1
13 NC
38 SLOT_SCA2
14 NC
39 SLOT_SCA3
15 H_BLK
40 SLOT_SCA4
16 NC
41 SLOT_DET
17 NTSC/PAL
42 FSC
18 YC_DET
43 CL/BW
19 1080/1035
44 NC
20 SCL
45 VCC+14V
21 SDA
46 VCC+14V
22 NC
47 VCC+7V
23 NC
48 VCC+7V
24 AUDIO
49 GND
25 GND
50 GND
TO
MOTHER PWB
CN007-CN009

NOTE

OPT	:	NON MOUNT
＊1	:	2SC3311A/QR/-T
＊2	:	2SA1309A/QR/-T
＊3	:	1SS133-T2
＊4	:	CE42142-222Z
＊5	:	QVP0053-501Z

■ CIRCUIT BOARD DIAGRAMS

MAIN P.C.BOARD

⚠ 警 告

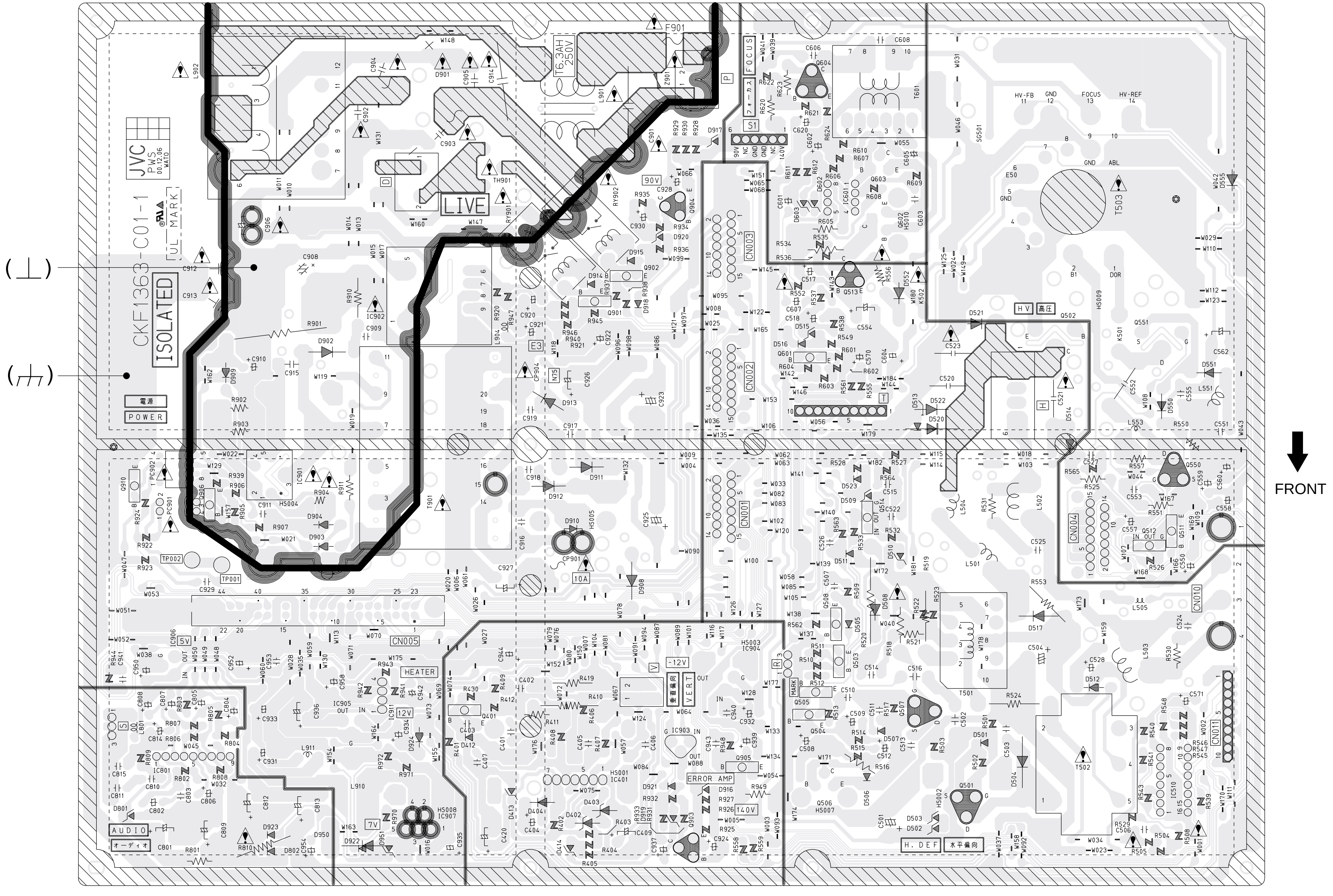
⚠ 印の部品は安全上重要な部品です。
交換するときは、安全及び性能維持のため必ず指定の部品をご使用ください。

▭ 内は充電部です。AC100Vが加わっておりますので点検、修理のときは感電しないよう充分ご注意ください。

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED WITH THE MARK ⚠ HAVE THE SPECIAL CHARACTERISTICS FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SAME TYPE.

CAUTION

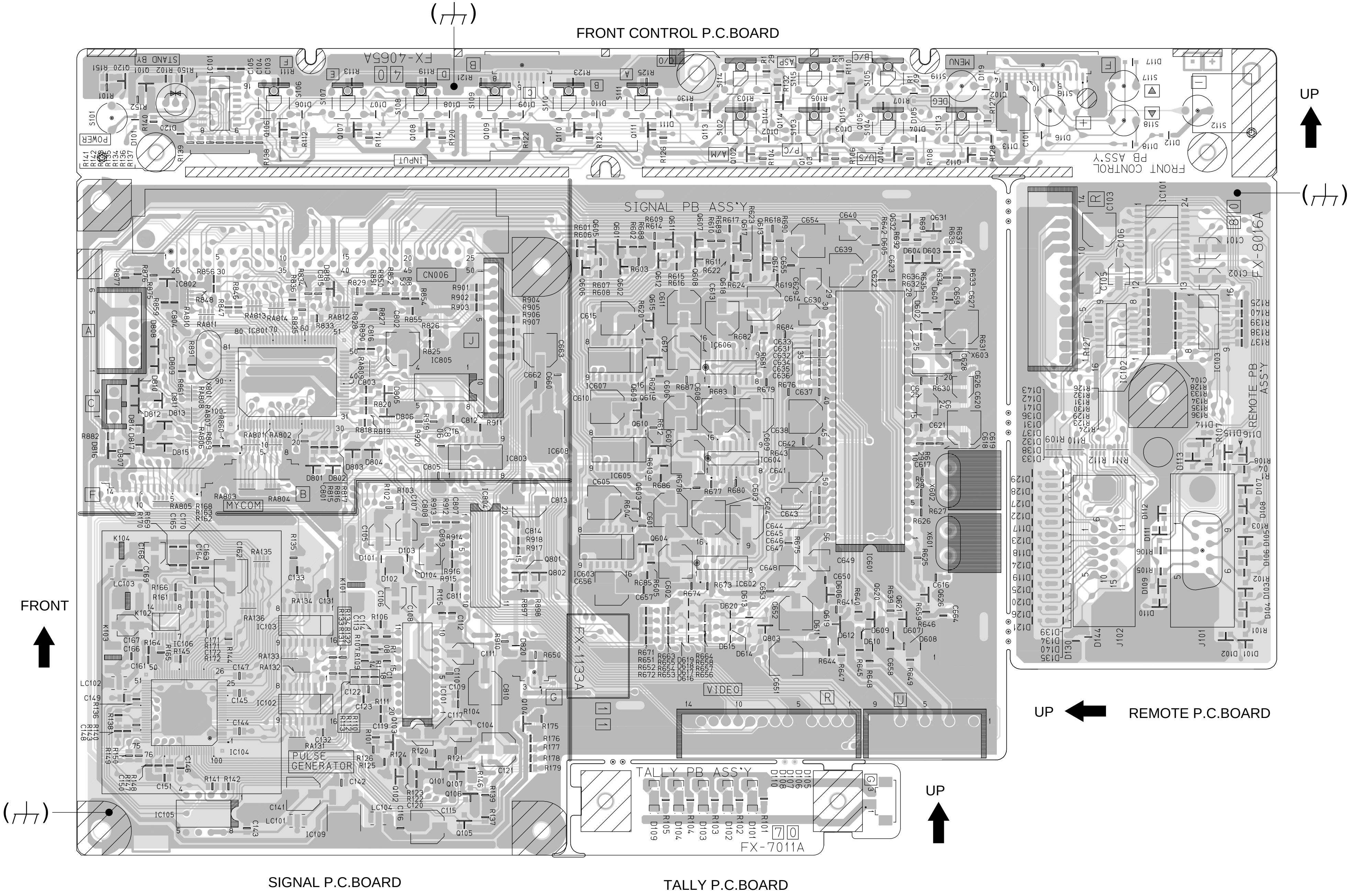
THE ▭ MARK INDICATES THE PRIMARY CIRCUIT TO DISTINGUISH THE PRIMARY FROM THE SECONDARY CIRCUIT. PAY ATTENTION NOT TO RECEIVE AN ELECTRIC SHOCK DURING REPAIR AND SERVICE OF THE PRODUCTS.


(⊥)
(⏚)
FRONT
JVC
PWS
00.12.06
CKF1363-C01-1
ISOLATED
UL MARK
LIVE
T6.3AH 250V
F901
FOCUS
フォーカス
電源
POWER
HV 高圧
H.DEF 水平偏向
VERT 垂直偏向
HEATER
ERROR AMP
AUDIO
オーディオ
90V
-12V
12V
140V
5V
7V
10A
CN001
CN002
CN003
CN004
CN005
CN010
CN011
T501
T502
T503
T601
T901
TP001
TP002
HV-FB
GND
FOCUS
HV-REF
ABL
DOR
B1
E50

CBA-1

CBA-1

SIGNAL, FRONT CONTROL, TALLY & REMOTE P.C.BOARD

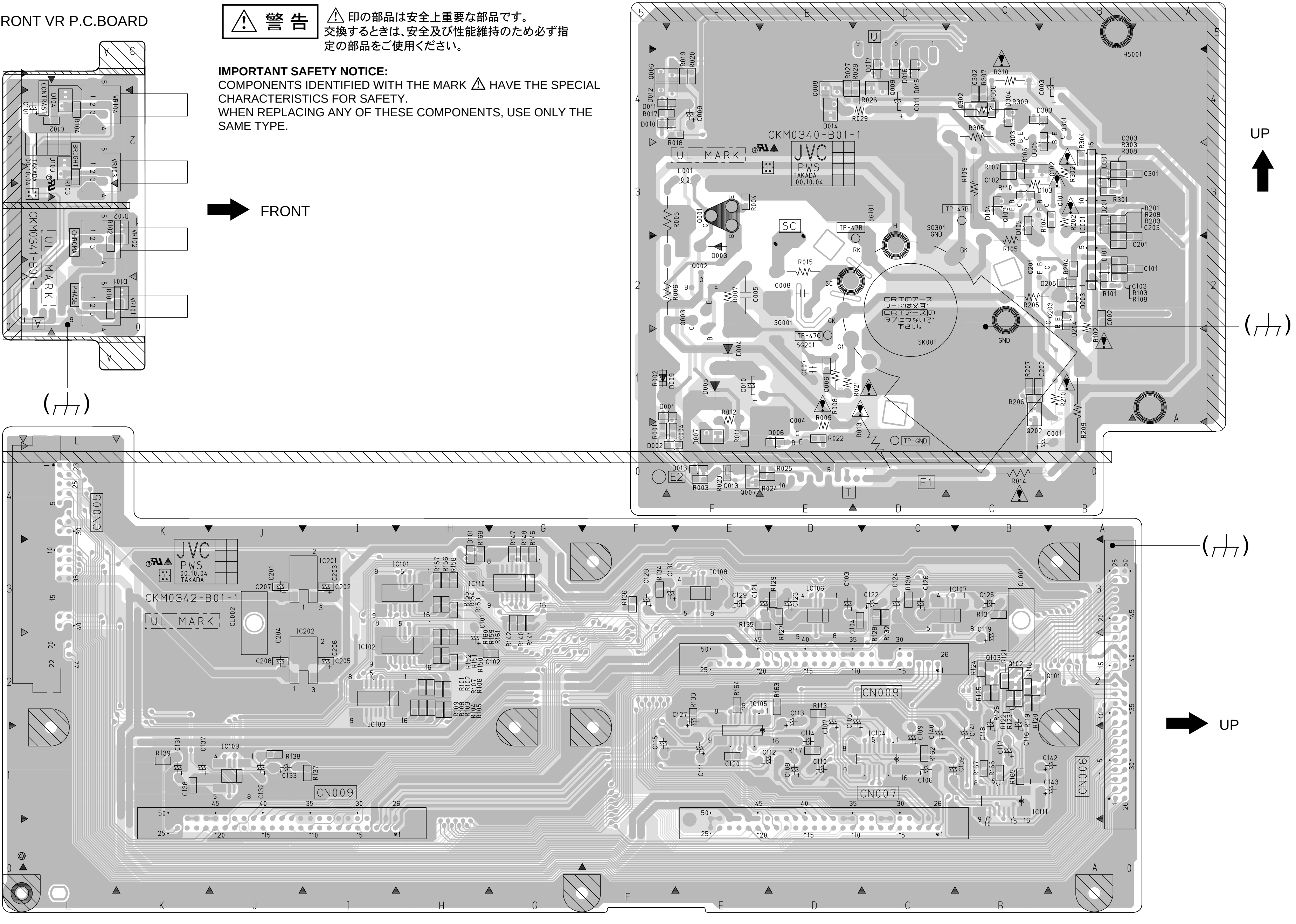

FRONT CONTROL P.C.BOARD
FX-4065A
FRONT CONTROL PB ASS'Y
UP
SIGNAL PB ASS'Y
FX-1133A
FX-8016A
REMOTE PB ASS'Y
UP
REMOTE P.C.BOARD
FRONT
TALLY PB ASS'Y
FX-7011A
UP
SIGNAL P.C.BOARD
TALLY P.C.BOARD

CRT, FRONT VR & MOTHER P.C.BOARD

⚠ 警 告

⚠ 印の部品は安全上重要な部品です。
交換するときは、安全及び性能維持のため必ず指定の部品をご使用ください。

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED WITH THE MARK ⚠ HAVE THE SPECIAL CHARACTERISTICS FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SAME TYPE.


FRONT VR P.C.BOARD
CONTRAST
BRIGHT
CHROMA
PHASE
VR101
VR102
VR103
VR104
CKM0341-B01-1
UL MARK
TAKADA
FRONT
CRT P.C.BOARD
CKM0340-B01-1
UL MARK
JVC
PWS
TAKADA
00.10.04
TP-47B
TP-47R
TP-47G
TP-GND
SG101
SG201
SG301 GND
SK001
H5001
GND
SC
E1
E2
UP
MOTHER P.C.BOARD
CKM0342-B01-1
UL MARK
JVC
PWS
00.10.04
TAKADA
CN005
CN006
CN007
CN008
CN009
CL001
CL002
IC101
IC102
IC103
IC104
IC105
IC106
IC107
IC108
IC109
IC110
IC111
IC201
IC202
UP

MOTHER P.C.BOARD

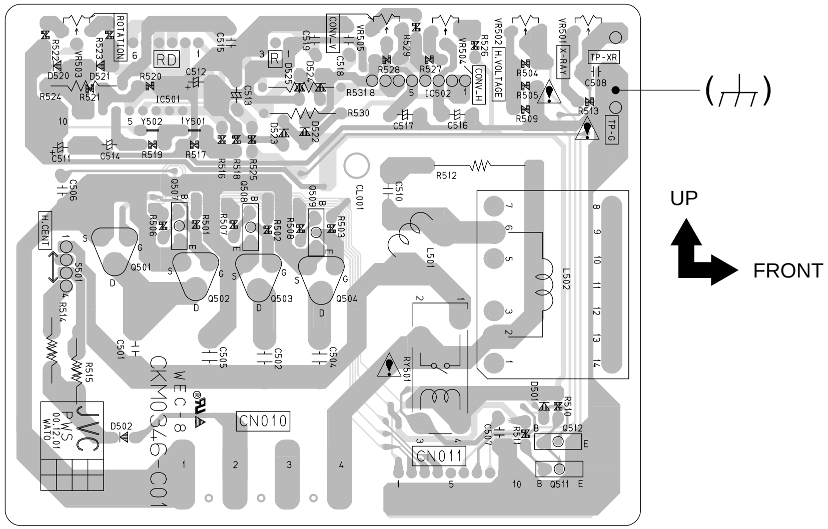
S. CORRECTION P.C.BOARD

VIDEO (BT-YA701P) & COMPO (BT-YA702P) P.C.BOARD (OPTION)

⚠ 警 告

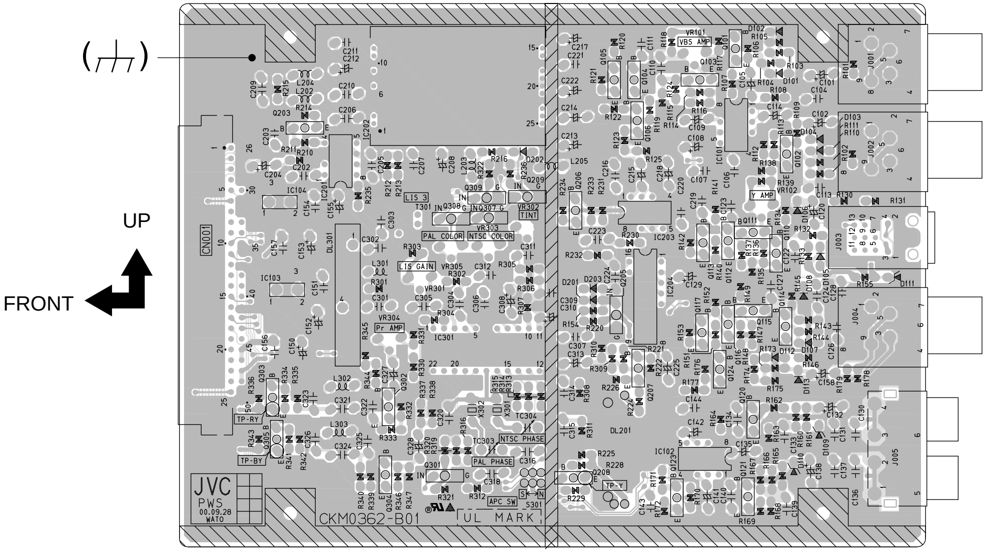
⚠印の部品は安全上重要な部品です。交換するときは、安全及び性能維持のため必ず指定の部品をご使用ください。

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED WITH THE MARK ⚠ HAVE THE SPECIAL CHARACTERISTICS FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SAME TYPE.


ROTATION
CONV.V
H.VOLTAGE
CONV.H
X-RAY
TP-XR
TP-G
H.CENT
IC501
IC502
Q501
Q502
Q503
Q504
L501
L502
RY501
CN010
CN011
WEC-8
CKM0346-C01
JVC
PWS
00.12.01
WATO

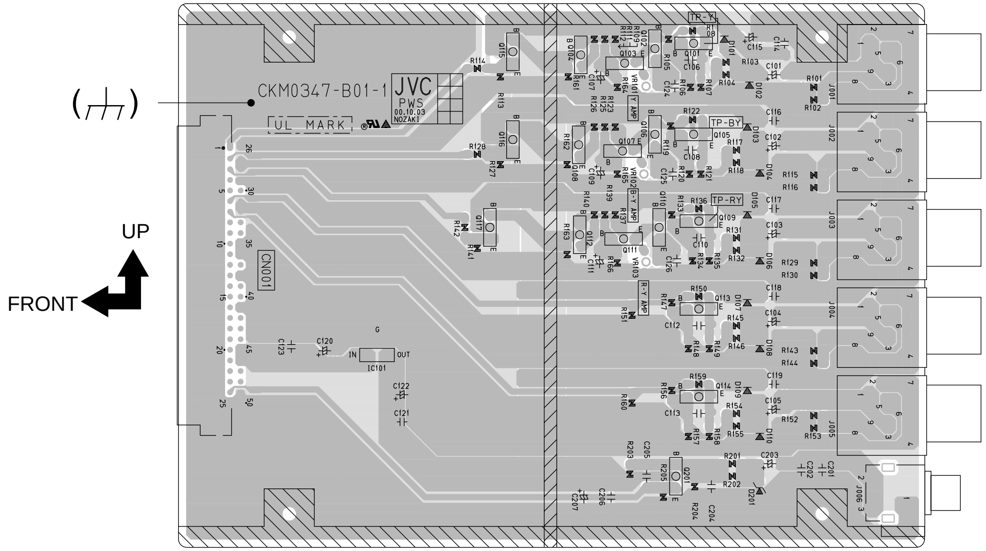
UP
FRONT

VIDEO P.C.BOARD (BT-YA701P)


CN001
IC101
IC102
IC103
IC104
IC201
IC203
IC301
DL201
DL301
PAL COLOR
NTSC COLOR
Y AMP
VBS AMP
TINT
APC SW
PAL PHASE
NTSC PHASE
TP-RY
TP-BY
TP-Y
J001
J002
J003
J004
J005
JVC
PWS
00.09.28
WATO
CKM0362-B01
UL MARK

UP
FRONT

COMPO P.C.BOARD (BT-YA702P)


CKM0347-B01-1
JVC
PWS
00.10.03
NOZAKI
UL MARK
CN001
IC101
TP-Y
TP-BY
TP-RY
J001
J002
J003
J004
J005
J006

UP
FRONT

EXPLODED VIEWS & REPLACEMENT PARTS LIST

Note:

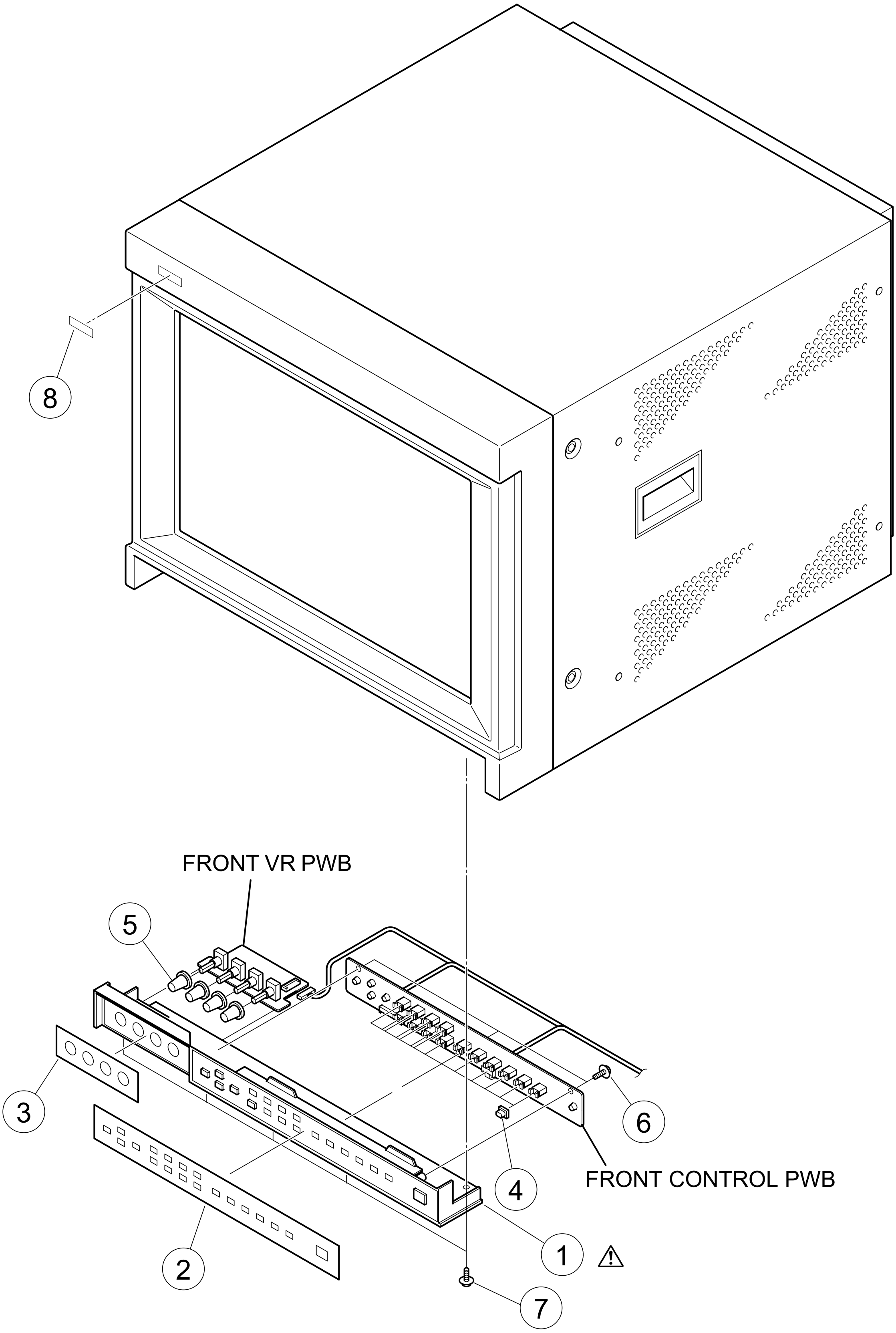
1. *Be sure to make your orders of replacement parts according to this list.
2. Unless otherwise specified, all resistors are in OHMS, K=1,000 OHMS,
   all capacitors are in MICROFARADS (μF), P=μμF.
3. The P.C. Board untils marked with "■" shown below the main assembled parts.
4. The parts marked with Ⓔ on the exploded view show the electric parts.
5. IMPORTANT SAFETY NOTICE
   Components identified with the mark ⚠ have the special characteristics for safety. When replacing any of these components, use only the same type.
6. The marking (RTL) indicates the retention time is limited for this item.
   After the diacontinuation of this assembly in production, it will no longer be available.

CONTENTS

SERVICING FIXTURES & TOOLS PRT-1
CASING PARTS ASSEMBLY PRT-2
CHASSIS FRAME ASSEMBLY PRT-4
PACKING PARTS ASSEMBLY PRT-6
CHASSIS FRAME ASSEMBLY (OPTION) PRT-8
PACKING PARTS ASSEMBLY (BT-YA701P, BT-YA702P) PRT-10
ELECTRICAL REPLACEMNT PARTS LIST (BT-H1700P) PRT-12
ELECTRICAL REPLACEMNT PARTS LIST (BT-YA701P) PRT-21
ELECTRICAL REPLACEMNT PARTS LIST (BT-YA702P) PRT-23

CASING PARTS ASSEMBLY

Components identified with the mark ⚠ have the special characteristics for safety.
When replacing any of these components, use only the same type.


8
FRONT VR PWB
5
3
6
4
FRONT CONTROL PWB
1 ⚠
2
7

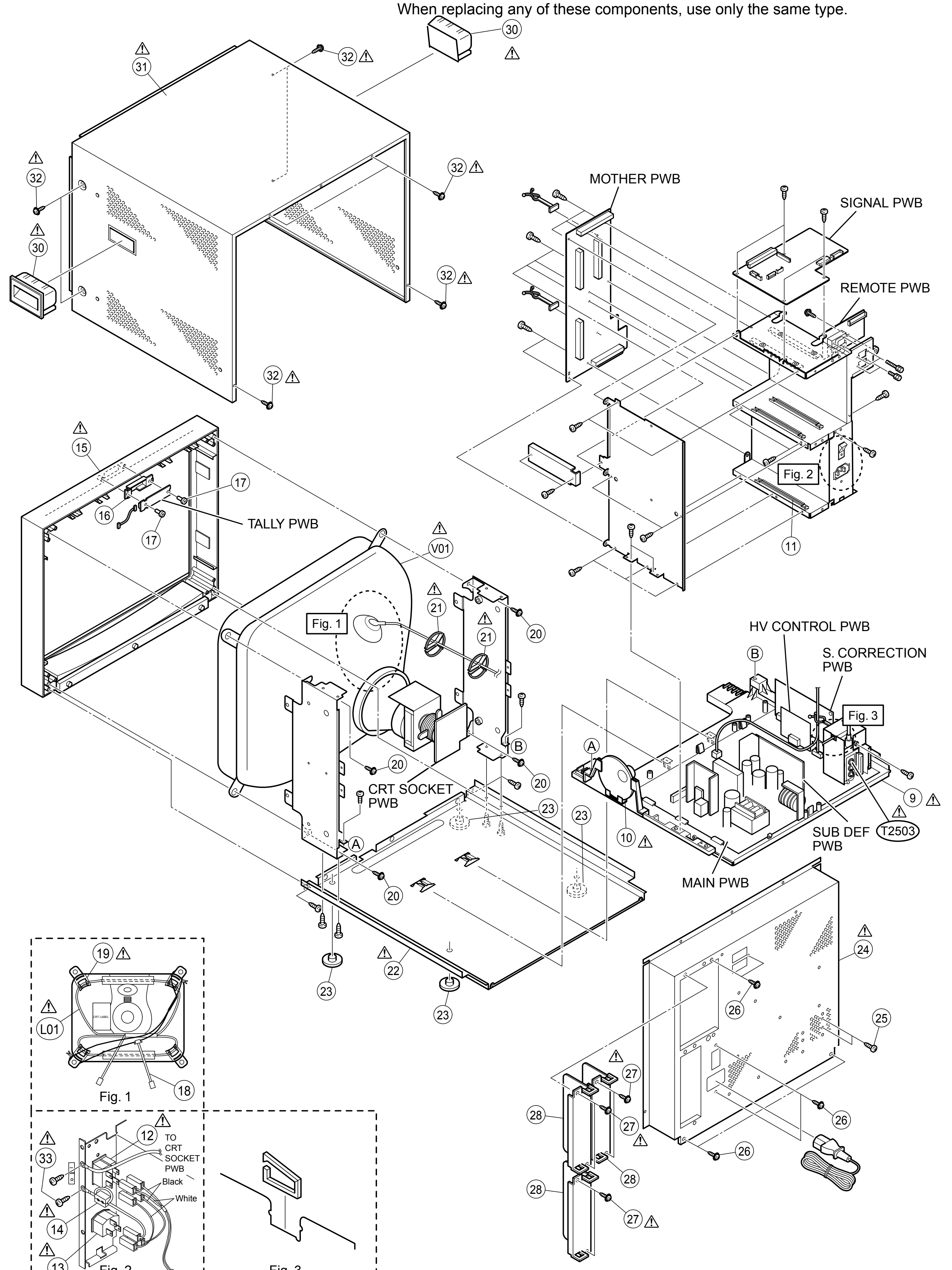
CASING PARTS ASSEMBLY

Components identified with the mark ⚠ have the special characterisitics for safety.
When replacing any of these components, use onlly the same type.

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
⚠ 1	LC20620-002A	CONTROL BASE	1	
2	LC31229-003A	CONTROL SHEET	1	
3	LC31230-002A	VOLUME SHEET	1	
4	LC40814-001A	PUSH BUTTON	13	
5	CM46758-005	CONTROL KNOB	4	
6	QYSBSFG3010Z	SCREW	3	
7	QYSBSF4012Z	SCREW	5	
8	CM48151-010	PANASONIC BADGE	1	

CHASSIS FRAME ASSEMBLY

Components identified with the mark ⚠ have the special characteristics for safety.
When replacing any of these components, use only the same type.



30 ⚠
32 ⚠
⚠ 31
⚠ 32
⚠ 30
32 ⚠
32 ⚠
32 ⚠
MOTHER PWB
SIGNAL PWB
REMOTE PWB
Fig. 2
11
⚠ 15
16
17
17
TALLY PWB
⚠ V01
⚠ 21
⚠ 21
20
Fig. 1
HV CONTROL PWB
B
S. CORRECTION PWB
Fig. 3
B
A
20
20
CRT SOCKET PWB
23
23
A
20
10 ⚠
9 ⚠
⚠ T2503
SUB DEF PWB
MAIN PWB
⚠ 22
23
23
⚠ 24
26
25
19 ⚠
⚠ L01
CRT LABEL
18
Fig. 1
⚠ 27
28
27
⚠
26
26
28
28
27 ⚠
⚠ 12
TO CRT SOCKET PWB
Black
White
⚠ 33
⚠ 14
⚠ 13
Fig. 2
Fig. 3

CHASSIS FRAME ASSEMBLY

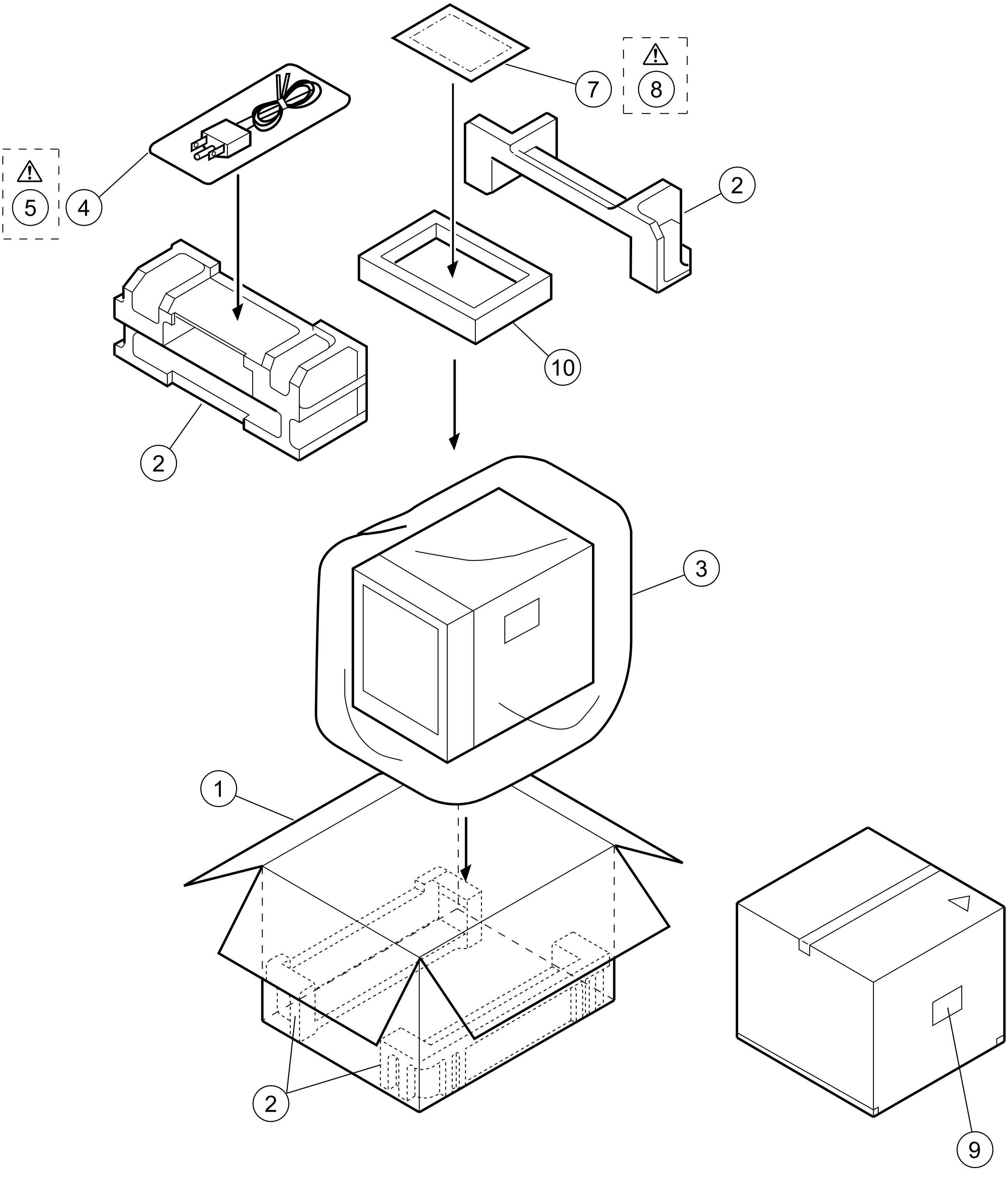
Components identified with the mark ⚠ have the special characterisitics for safety.
When replacing any of these components, use onlly the same type.

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
⚠ L01	QQW0112-001	DEGAUSS COIL	1	
⚠ V01	M41LRY31X22	CRT ASS'Y (WITH DY)	1	
⚠ T2503	QQH0087-001	FBT	1	
⚠ 9	LC10868-001B	SHASSIS BASE	1	
⚠ 10	CEBSS08P-01K	SPEAKER	1	
11	QZW0046-001	GUIDE RAIL	1	
⚠ 12	QSW0699-001	POWER SWITCH	1	
⚠ 13	QMCB004-001	3P INLET	1	
⚠ 14	QQR0490-001	NOISE FILTER	1	
⚠ 15	LC10867-002A	FRONT PANEL	1	
16	LC40815-001A	TALLY COVER	1	
17	QYSBSFG3010Z	SCREW	2	
18	CHGT0011-AAN	WIRE	1	
⚠ 19	CHM2032-045F	DEG CLAMP	1	
20	CM48275-001	SCREW	4	
⚠ 21	CM30964-001	SPACER RING	2	
⚠ 22	LC11052-001A	BOTTOM COVER	1	
23	CM47686-00A	FOOT	4	
⚠ 24	LC11053-001A	REAR COVER	1	
25	QYSBSF4012Z	SCREW	2	
⚠ 26	CM44287-00C	SCREW	6	
⚠ 27	CM44287-00E	SCREW	6	
28	LC31464-003A	SLOT PANEL	3	
⚠ 30	LC20914001BH	HANDLE	2	
⚠ 31	LC10270-014A	UPPER COVER	1	
⚠ 32	CM44287-00C	SCREW	8	
⚠ 33	CM44287-00E	SCREW	2	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks

PACKING PARTS ASSEMBLY

Components identified with the mark ⚠ have the special characteristics for safety.
When replacing any of these components, use only the same type.



PACKING PARTS ASSEMBLY

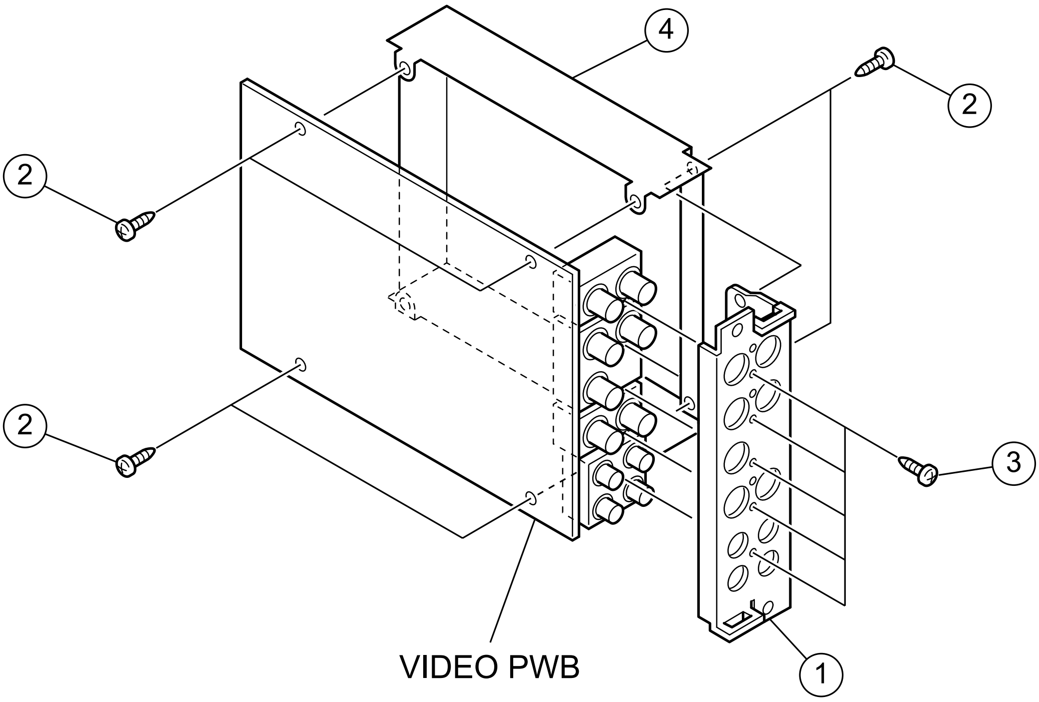
Components identified with the mark ⚠ have the special characterisitics for safety.
When replacing any of these components, use onllly the same type.

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
1	LC10275-055A	PACKING CASE	1	
2	LC10873-001B	PACKING CUSHION	1	
3	CP30974-004	POLYETHYLENE BAG	1	
4	QPA01203005	POLYETHYLENE BAG	1	
⚠ 5	QMP1110-244K	POWER CORD	1	
7	QPA02503505P	POLYETHYLENE BAG	1	
⚠ 8	LCT1110-001A	OPERATING INSTRUCTIONS	1	
9	LC21013-003B	PACKING LABEL	1	
10	LC20758-002A	WIDE MASK ASS'Y	1	

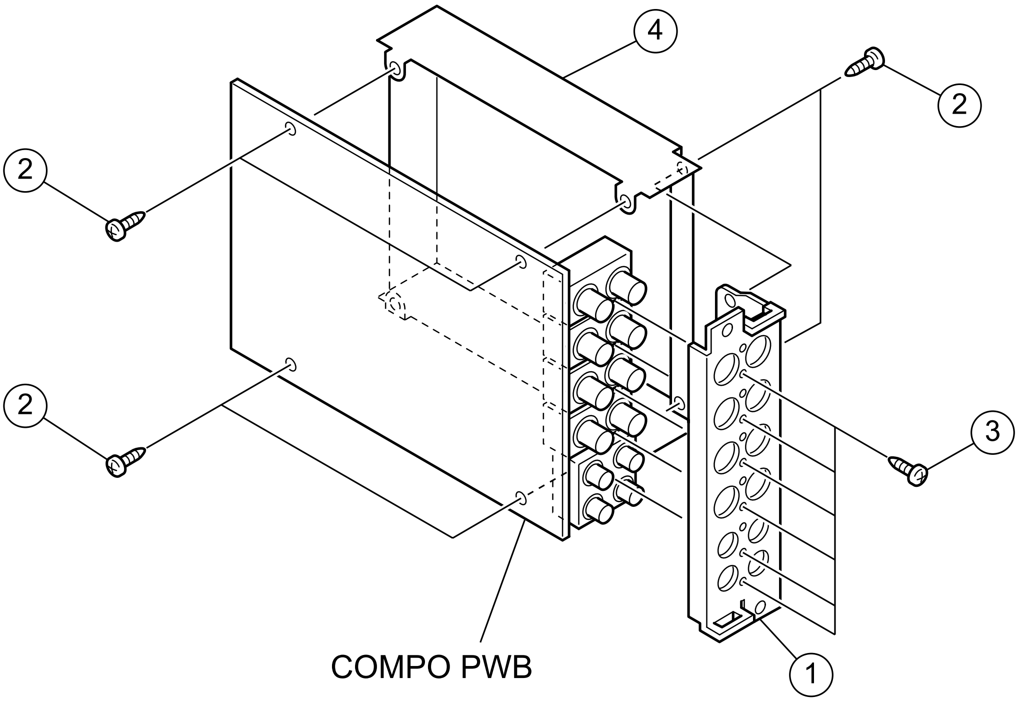
Ref.No.	Part No.	Part Name & Description	Pcs	Remarks

CHASSIS FRAME ASSEMBLY (OPTION)

[BT-YA701P]


4
2
2
2
3
1
VIDEO PWB

[BT-YA702P]


4
2
2
2
3
1
COMPO PWB

CHASSIS FRAME ASSEMBLY(OPTION)

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
	BT-YA701P			
1	LC31328-001A	SLOT PANEL	1	
2	QYSBSGG3008Z	TAPPING SCREW	6	
3	QYSDSF3010M	TAPPING SCREW	5	
4	LC31465001AC	SLOT SHIELD	1	
	BT-YA702P			
1	LC31328-002A	SLOT PANEL	1	
2	QYSBSGG3008Z	TAPPING SCREW	6	
3	QYSDSF3010M	TAPPING SCREW	6	
4	LC31465001AC	SLOT SHIELD	1	

PACKING PARTS ASSEMBLY (BT-YA701P, BT-YA702P)

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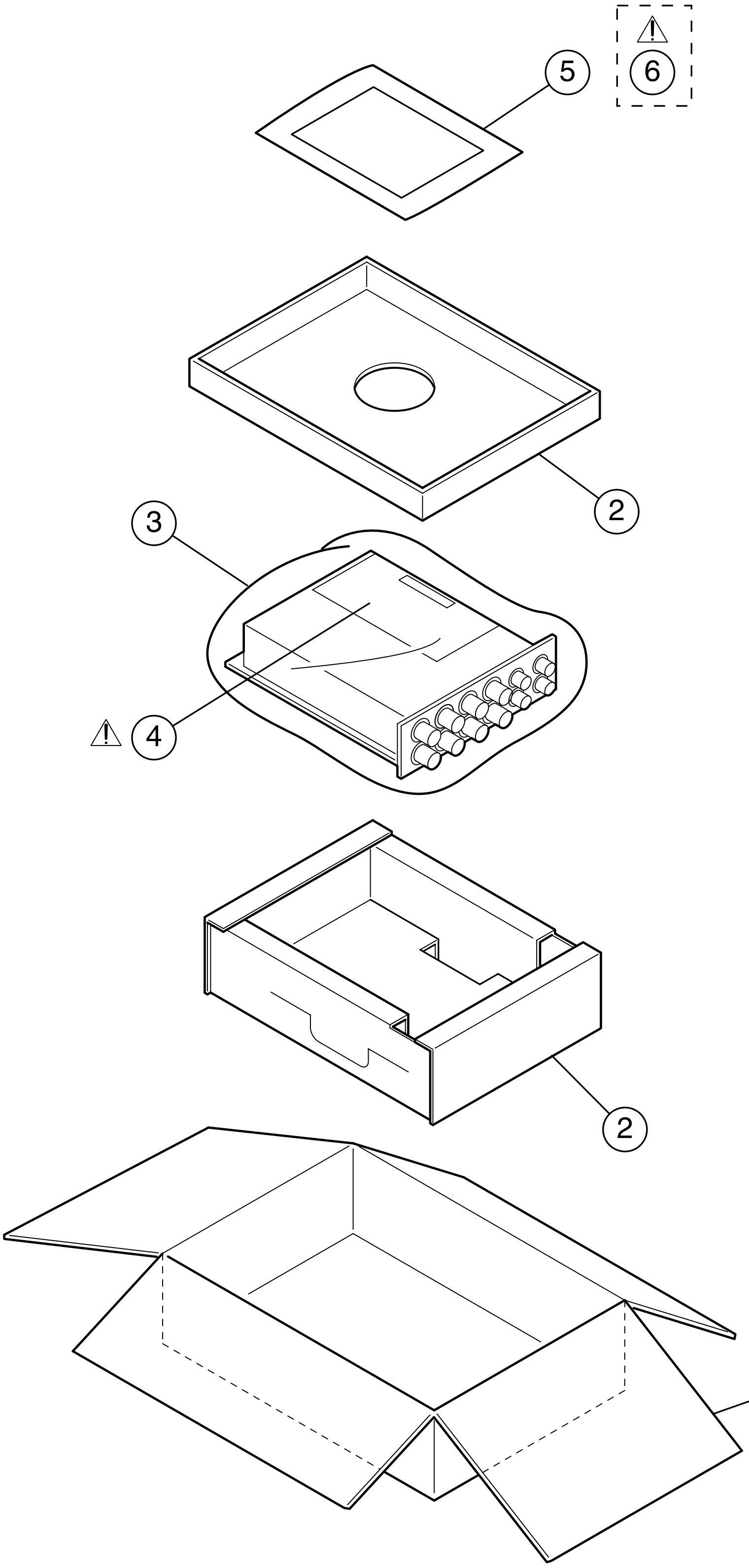

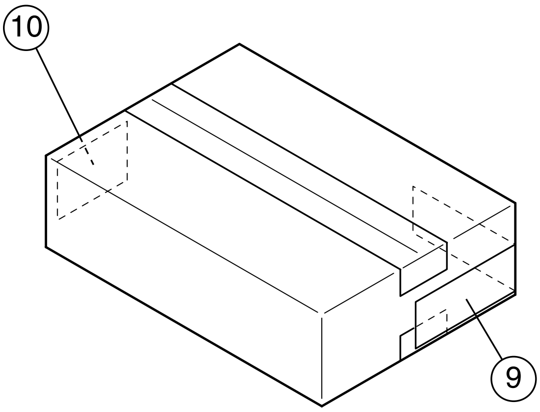

PACKING PARTS ASSEMBLY(BT-YA701P, BT-YA702P)

Components identified with the mark ⚠ have the special characterisitics for safety.
When replacing any of these components, use onlly the same type.

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
1	LC31249-001A	PACKING CASE	1	
2	LC31248-001A	PACKING SHEET	1	
3	QPK02503505P	POLYETHYLENE BAG	1	
⚠ 4	LC21017-001A	NAME PLATE	1	FOR BT-YA701P
⚠ 4	LC21017-002A	NAME PLATE	1	FOR BT-YA702P
5	QPA02503505P	POLYETHYLENE BAG	1	
⚠ 6	LCT1111-001A	OPERATING INSTRUCTIONS	1	
9	LC31822-001A	PACKING LABEL	1	FOR BT-YA701P
9	LC31822-002B	PAKCING LABEL	1	FOR BT-YA702P
10	CM36338-001	POS LABEL	1	

ELECTRICAL REPLACEMNT PARTS LIST (BT-H1700P)

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
■ E1	FX-1149A	SIGNAL P.C.BOARD	1	(RTL)
■ E2	FX-2072A	MAIN P.C.BOARD	1	(RTL)
■ E3	FX-2112A	S.CORRECTION P.C.BOARD	1	(RTL)
■ E4	FX-3065A	CRT P.C.BOARD	1	(RTL)
■ E5	FX-4073A	FRONT CONTROL P.C.BOARD	1	(RTL)
■ E6	FX-5023A	FRONT VR P.C.BOARD	1	(RTL)
■ E7	FX-6081A	MOTHER P.C.BOARD	1	(RTL)
■ E8	FX-7027A	TALLY P.C.BOARD	1	(RTL)
■ E9	FX-8027A	REMOTE P.C.BOARD	1	(RTL)
■ E10	FX-M025A	SUB DEF P.C.BOARD	1	(RTL)
■ E11	FX-M026A	HV CONTROL P.C.BOARD	1	(RTL)
■ E1	FX-1149A	SIGNAL P.C.BOARD	1	(RTL)
C1104	NEN51HM-105X	E.CAPACITOR 50V 1U	1	
C1105	NEN51CM-475X	E.CAPACITOR 16V 4.7U	1	
C1106	NEH71EM-475X	E.CAPACITOR 25V 4.7U	1	
C1107	NEN51CM-475X	E.CAPACITOR 16V 4.7U	1	
C1108	NEH71EM-475X	E.CAPACITOR 25V 4.7U	1	
C1109	NCB21HK-472X	C.CAPACITOR 50V 4700P	1	
C1110	NCB21EK-683X	C.CAPACITOR 25V 0.068U	1	
C1111	NEH71CM-106X	E.CAPACITOR 16V 10U	1	
C1112	NCB21HK-103X	C.CAPACITOR 50V 0.01U	1	
C1113	NDC21HJ-121X	C.CAPACITOR 50V 120P	1	
C1114	NDC21HJ-820X	C.CAPACITOR 50V 82P	1	
C1115	NEH70JM-107X	E.CAPACITOR 6.3V 100U	1	
C1116	NCF21HZ-103X	C.CAPACITOR 50V 0.01U	1	
C1117	NEH71CM-106X	E.CAPACITOR 16V 10U	1	
C1118	NCF21HZ-103X	C.CAPACITOR 50V 0.01U	1	
C1119	NDC21HJ-101X	C.CAPACITOR 50V 100P	1	
C1121	NEH71CM-476X	E.CAPACITOR 16V 47U	1	
C1122	NDC21HJ-330X	C.CAPACITOR 50V 33P	1	
C1123	NCB21HK-102X	C.CAPACITOR 50V 1000P	1	
C1131,32	NCF21HZ-104X	C.CAPACITOR 50V 0.1U	2	
C1133	NDC21HJ-100X	C.CAPACITOR 50V 10P	1	
C1134	NDC21HJ-271X	C.CAPACITOR 50V 270P	1	
C1141	NEH70JM-107X	E.CAPACITOR 6.3V 100U	1	
C1142-49	NCF21HZ-104X	C.CAPACITOR 50V 0.1U	8	
C1150	NCB21HK-103X	C.CAPACITOR 50V 0.01U	1	
C1151	NCB21HK-152X	C.CAPACITOR 50V 1500U	1	
C1162	NEH70GM-227X	E.CAPACITOR 4V 220U	1	
C1163	NCF21HZ-224X	C.CAPACITOR 50V 0.22U	1	
C1165,66	NCF21HZ-104X	C.CAPACITOR 50V 0.1U	2	
C1167,68	NEH71CM-106X	E.CAPACITOR 16V 10U	2	
C1169,70	NCF21HZ-104X	C.CAPACITOR 50V 0.1U	2	
C1171	NDC21HJ-220X	E.CAPACITOR 16V 22P	1	
C1172	NDC21HJ-271X	C.CAPACITOR 50V 270P	1	
C1601-04	NEN51AM-336X	E.CAPACITOR 10V 33U	4	
C1605	QETN1HM-225Z	E.CAPACITOR 50V 2.2U	1	
C1606-09	NEN51AM-336X	E.CAPACITOR 10V 33U	4	
C1610	QETN1HM-225Z	E.CAPACITOR 50V 2.2U	1	
C1611-14	NEN51AM-336X	E.CAPACITOR 10V 33U	4	
C1615	QETN1HM-225Z	E.CAPACITOR 50V 33U	1	
C1616,17	NDC21HJ-120X	C.CAPACITOR 50V 12P	2	
C1618	NCB21CK-224X	C.CAPACITOR 16V 0.22U	1	
C1619	NCF21HZ-223X	C.CAPACITOR 50V 0.22U	1	
C1620	NEH71CM-476X	E.CAPACITOR 16V 47U	1	
C1621	NCF21HZ-103X	C.CAPACITOR 50V 0.01U	1	
C1622,23	NCB21EK-104X	C.CAPACITOR 25V 0.1U	2	
C1624	NEH71HM-225X	E.CAPACITOR 50V 2.2U	1	
C1625	NCB21HK-223X	C.CAPACITOR 50V 0.022U	1	
C1626	NEH71CM-106X	E.CAPACITOR 16V 10U	1	
C1627	NEH71AM-107X	C.CAPACITOR 10V 100U	1	
C1628	NCF21HZ-103X	C.CAPACITOR 50V 0.01U	1	
C1629,30	NEH71HM-225X	E.CAPACITOR 50V 2.2U	2	
C1631-36	NCB21EK-104X	C.CAPACITOR 25V 0.1U	6	
C1637	NCF21HZ-103X	C.CAPACITOR 50V 0.01U	1	
C1638	NEH71AM-107X	C.CAPACITOR 10V 100U	1	
C1639	NEH71CM-476X	E.CAPACITOR 16V 47U	1	
C1640	NEH71HM-105X	E.CAPACITOR 50V 1U	1	
C1641	NEH71AM-107X	C.CAPACITOR 10V 100U	1	
C1642	NCF21HZ-103X	C.CAPACITOR 50V 0.01U	1	
C1643	NEH71HM-225X	E.CAPACITOR 50V 2.2U	1	
C1644	NEH71CM-106X	E.CAPACITOR 16V 10U	1	
C1645	NCB21EK-104X	C.CAPACITOR 25V 0.1U	1	
C1646,47	NCB21CK-474X	C.CAPACITOR 16V 0.47U	2	
C1648,49	NEH71HM-225X	E.CAPACITOR 50V 2.2U	2	
C1651,52	NEH71AM-107X	C.CAPACITOR 10V 100U	2	
C1653	NCF21HZ-103X	C.CAPACITOR 50V 0.01U	1	
C1654	NEH71CM-476X	E.CAPACITOR 16V 47U	1	
C1655	NCF21HZ-103X	C.CAPACITOR 50V 0.01U	1	
C1656	NEH71AM-107X	C.CAPACITOR 10V 100U	1	
C1657,58	NCF21HZ-103X	C.CAPACITOR 50V 0.01U	2	
C1659	NDC21HJ-151X	C.CAPACITOR 50V 150P	1	
C1660	NCB21EK-104X	C.CAPACITOR 25V 0.01U	1	
C1662	NCB21EK-104X	C.CAPACITOR 25V 0.01U	1	
C1663	NEH71AM-107X	C.CAPACITOR 10V 100U	1	
C1664	NCB21EK-104X	C.CAPACITOR 25V 0.01U	1	
C1665-67	NEH71AM-107X	C.CAPACITOR 10V 100U	3	
C1801	NCF21HZ-104X	C.CAPACITOR 50V 0.1U	1	
C1802	NEH70JM-107X	E.CAPACITOR 6.3V 100U	1	
C1803	NCF21HZ-103X	C.CAPACITOR 50V 0.01U	1	
C1804	NDC21HJ-271X	C.CAPACITOR 50V 270P	1	
C1806	NCF21HZ-103X	C.CAPACITOR 50V 0.1U	1	
C1807	NCB21HK-472X	C.CAPACITOR 50V 4700P	1	
C1808	NCF21EZ-104X	C.CAPACITOR 25V 0.1U	1	
C1809	NEH71HM-105X	E.CAPACITOR 50V 1U	1	
C1810	NEH71CM-476X	E.CAPACITOR 16V 47U	1	
C1811	NCF21HZ-103X	C.CAPACITOR 50V 0.01U	1	
C1812	NCF21HZ-104X	C.CAPACITOR 50V 0.1U	1	
C1813	NEH70JM-107X	E.CAPACITOR 6.3V 100U	1	
C1814	NCF21HZ-103X	C.CAPACITOR 50V 0.01U	1	
C1815	NDC21HJ-271X	C.CAPACITOR 50V 270P	1	
C1816	NCB21HK-102X	C.CAPACITOR 50V 1000P	1	
CN100C	QGA2501C5-03	CONNECTOR	1	
CN100A	QGA2501F1-06	CONNECTOR	1	
CN100U	QGA2501F1-09	CONNECTOR	1	
D1101-04	MA111	DIODE	4	
D1601,02	MA111	DIODE	2	
D1605	MA111	DIODE	1	
D1606	MA3030-H	DIODE	1	
D1607-20	MA111	DIODE	14	
D1801-06	MA3051-M	DIODE	6	
D1807	MA111	DIODE	1	
D1808-18	MA3051-M	DIODE	11	
IC1101	M52346SP	IC	1	
IC1102,03	JLC1562BF	IC	2	
IC1104	EPF6016ATC	IC	1	
IC1105	EPC1441V1700	IC	1	
IC1106	TLC2932IPW	IC	1	
IC1109	BA033FP	IC	1	

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Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
IC1601	TA1276AN	IC	1	
IC1602	M52055FP	IC	1	
IC1603	TC4053BF	IC	1	
IC1604	M52055FP	IC	1	
IC1605	TC4053BF	IC	1	
IC1606	M52055FP	IC	1	
IC1607	TC4053BF	IC	1	
IC1608	BA09FP	IC	1	
IC1801	MB90F553H170	IC	1	
IC1802	MN1382-Q	IC	1	
IC1803	TC4053BF	IC	1	
IC1804	M35045-075SP	IC	1	
IC1805	24C16V1700CG	IC	1	
K1103	CE42136-A01Y	BEAD CORE	1	
LC1101-04	NQR0313-009X	FILTER	4	
Q1101	2SC2412K/QR/	TRANSISTOR	1	
Q1102	2SA1037AK/QR	TRANSISTOR	1	
Q1103-07	2SC2412K/QR/	TRANSISTOR	5	
Q1601,02	2SC2412K/QR/	TRANSISTOR	2	
Q1603	2SA1034AK/QR	TRANSISTOR	1	
Q1604,05	2SC2412K/QR/	TRANSISTOR	2	
Q1606	2SA1034AK/QR	TRANSISTOR	1	
Q1607,08	2SC2412K/QR/	TRANSISTOR	2	
Q1609	2SA1034AK/QR	TRANSISTOR	1	
Q1610,11	2SC2412K/QR/	TRANSISTOR	2	
Q1612	2SA1034AK/QR	TRANSISTOR	1	
Q1613,14	2SC2412K/QR/	TRANSISTOR	2	
Q1615	2SA1034AK/QR	TRANSISTOR	1	
Q1616,17	2SC2412K/QR/	TRANSISTOR	2	
Q1618	2SA1034AK/QR	TRANSISTOR	1	
Q1619	2SA1035AK/QR	TRANSISTOR	1	
Q1620	2SA1036AK/QR	TRANSISTOR	1	
Q1621	2SA1037AK/QR	TRANSISTOR	1	
Q1626	2SA1037AK/QR	TRANSISTOR	1	
Q1631,32	DTC124EK	TRANSISTOR	2	
Q1801,02	2SC2412K/QR/	TRANSISTOR	2	
Q1803	DTC124EK	TRANSISTOR	1	
R1101-03	NRSA02J-101X	M.RESISTOR 1/10W 100	3	
R1104	NRSA02J-104X	M.RESISTOR 1/10W 100	1	
R1105	NRSA02J-823X	M.RESISTOR 1/10W 82K	1	
R1106	NRSA02J-473X	M.RESISTOR 1/10W 47K	1	
R1107	NRSA02J-273X	M.RESISTOR 1/10W 27K	1	
⚠ R1108-10	NRSA02J-102X	M.RESISTOR 1/10W 1K	3	
R1111	NRSA02J-183X	M.RESISTOR 1/10W 18K	1	
R1112,13	NRSA02J-101X	M.RESISTOR 1/10W 100	2	
⚠ R1114	NRSA02J-102X	M.RESISTOR 1/10W 1K	1	
R1120	NRSA02J-822X	M.RESISTOR 1/10W 8.2K	1	
R1121	NRSA02J-272X	M.RESISTOR 1/10W 2.7K	1	
⚠ R1122	NRSA02J-182X	M.RESISTOR 1/10W 1.8K	1	
R1123	NRSA02J-122X	M.RESISTOR 1/10W 1.2K	1	
R1124-26	NRSA02J-272X	M.RESISTOR 1/10W 2.7K	3	
R1131-34	NRSA02J-101X	M.RESISTOR 1/10W 100	4	
⚠ R1135	NRSA02J-0R0X	M.RESISTOR 1/10W 0	1	
R1136	NRSA02J-103X	M.RESISTOR 1/10W 10K	1	
⚠ R1137	NRSA02J-102X	M.RESISTOR 1/10W 1K	1	
R1138	NRSA02J-103X	M.RESISTOR 1/10W 10K	1	
⚠ R1139	NRSA02J-102X	M.RESISTOR 1/10W 1K	1	
R1140	NRSA02J-103X	M.RESISTOR 1/10W 10K	1	
⚠ R1141,42	NRSA02J-0R0X	M.RESISTOR 1/10W 0	2	
⚠ R1143-49	NRSA02J-102X	M.RESISTOR 1/10W 1K	7	
R1150	NRSA02J-103X	M.RESISTOR 1/10W 10K	1	
⚠ R1151	NRSA02J-102X	M.RESISTOR 1/10W 1K	1	
R1161	NRSA02J-103X	M.RESISTOR 1/10W 10K	1	
R1162,63	NRSA02J-221X	M.RESISTOR 1/10W 220	2	
⚠ R1165	NRSA02J-0R0X	M.RESISTOR 1/10W 0	1	
⚠ R1166	NRSA02J-102X	M.RESISTOR 1/10W 1K	1	
R1168	NRSA02J-391X	M.RESISTOR 1/10W 390	1	
R1170	NRSA02J-332X	M.RESISTOR 1/10W 3.3K	1	
⚠ R1171,72	NRSA02J-0R0X	M.RESISTOR 1/10W 0	2	
R1175	NRSA02J-472X	M.RESISTOR 1/10W 4.7K	1	
R1176	NRSA02J-221X	M.RESISTOR 1/10W 220	1	
⚠ R1177-79	NRSA02J-102X	M.RESISTOR 1/10W 1K	3	
R1601	NRSA02J-101X	M.RESISTOR 1/10W 100	1	
R1602	NRSA02J-561X	M.RESISTOR 1/10W 560	1	
R1603,04	NRSA02J-272X	M.RESISTOR 1/10W 2.7K	2	
R1605	NRSA02J-561X	M.RESISTOR 1/10W 560	1	
R1606	NRSA02J-272X	M.RESISTOR 1/10W 2.7K	1	
R1607	NRSA02J-101X	M.RESISTOR 1/10W 100	1	
R1608	NRSA02J-272X	M.RESISTOR 1/10W 2.7K	1	
R1609	NRSA02J-101X	M.RESISTOR 1/10W 100	1	
R1610	NRSA02J-561X	M.RESISTOR 1/10W 560	1	
R1611,12	NRSA02J-272X	M.RESISTOR 1/10W 2.7K	2	
R1613	NRSA02J-561X	M.RESISTOR 1/10W 560	1	
R1614	NRSA02J-272X	M.RESISTOR 1/10W 2.7K	1	
R1615	NRSA02J-101X	M.RESISTOR 1/10W 100	1	
R1616	NRSA02J-272X	M.RESISTOR 1/10W 2.7K	1	
R1617	NRSA02J-101X	M.RESISTOR 1/10W 100	1	
R1618	NRSA02J-561X	M.RESISTOR 1/10W 560	1	
R1619,20	NRSA02J-272X	M.RESISTOR 1/10W 2.7K	2	
R1621	NRSA02J-561X	M.RESISTOR 1/10W 560	1	
R1622	NRSA02J-272X	M.RESISTOR 1/10W 2.7K	1	
R1623	NRSA02J-101X	M.RESISTOR 1/10W 100	1	
R1624	NRSA02J-272X	M.RESISTOR 1/10W 2.7K	1	
⚠ R1625	NRSA02J-102X	M.RESISTOR 1/10W 1K	1	
R1626-28	NRSA02J-563X	M.RESISTOR 1/10W 56K	3	
R1629	NRSA02J-333X	M.RESISTOR 1/10W 33K	1	
R1630	NRSA02J-272X	M.RESISTOR 1/10W 2.7K	1	
R1631	NRSA02J-391X	M.RESISTOR 1/10W 390	1	
R1632	NRSA02J-101X	M.RESISTOR 1/10W 100	1	
⚠ R1633,34	NRSA02J-0R0X	M.RESISTOR 1/10W 0	2	
R1635	NRSA02J-103X	M.RESISTOR 1/10W 10K	1	
R1636-41	NRSA02J-101X	M.RESISTOR 1/10W 100	6	
R1642	NRSA02J-332X	M.RESISTOR 1/10W 3.3K	1	
⚠ R1644-46	NRSA02J-102X	M.RESISTOR 1/10W 1K	3	
R1647-49	NRSA02J-101X	M.RESISTOR 1/10W 100	3	
⚠ R1650	NRSA02J-0R0X	M.RESISTOR 1/10W 0	1	
R1651,52	NRSA02J-562X	M.RESISTOR 1/10W 5.6K	2	
⚠ R1653-55	NRSA02J-392X	M.RESISTOR 1/10W 3.9K	3	
R1656-58	NRSA02J-271X	M.RESISTOR 1/10W 270	3	
R1659	NRSA02J-561X	M.RESISTOR 1/10W 560	1	
R1660	NRSA02J-473X	M.RESISTOR 1/10W 47K	1	
⚠ R1663	NRSA02J-0R0X	M.RESISTOR 1/10W 0	1	
⚠ R1664	NRSA02J-102X	M.RESISTOR 1/10W 1K	1	
R1671	NRSA02J-562X	M.RESISTOR 1/10W 5.6K	1	
⚠ R1672,73	NRSA02J-0R0X	M.RESISTOR 1/10W 0	2	
R1674	NRSA02J-153X	M.RESISTOR 1/10W 15K	1	
R1675,76	NRSA02J-183X	M.RESISTOR 1/10W 18K	2	
⚠ R1677	NRSA02J-0R0X	M.RESISTOR 1/10W 0	1	
R1678	NRSA02J-153X	M.RESISTOR 1/10W 15K	1	
R1679,80	NRSA02J-183X	M.RESISTOR 1/10W 18K	2	
⚠ R1681	NRSA02J-0R0X	M.RESISTOR 1/10W 0	1	
R1682	NRSA02J-153X	M.RESISTOR 1/10W 15K	1	
R1683,84	NRSA02J-183X	M.RESISTOR 1/10W 18K	2	
R1685-90	NRSA02J-561X	M.RESISTOR 1/10W 560	6	
R1691	NRSA02J-154X	M.RESISTOR 1/10W 150K	1	
R1692	NRSA02J-184X	M.RESISTOR 1/10W 180K	1	
R1815-20	NRSA02J-101X	M.RESISTOR 1/10W 100	6	
R1825-28	NRSA02J-472X	M.RESISTOR 1/10W 4.7K	4	
R1829	NRSA02J-101X	M.RESISTOR 1/10W 100	1	
R1833-47	NRSA02J-101X	M.RESISTOR 1/10W 100	6	
R1848	NRSA02J-103X	M.RESISTOR 1/10W 10K	1	
R1850-56	NRSA02J-103X	M.RESISTOR 1/10W 10K	7	
R1859	NRSA02J-101X	M.RESISTOR 1/10W 100	1	
R1860	NRSA02J-103X	M.RESISTOR 1/10W 10K	1	
R1861	NRSA02J-101X	M.RESISTOR 1/10W 100	1	
R1869	NRSA02J-103X	M.RESISTOR 1/10W 10K	1	
R1875-77	NRSA02J-103X	M.RESISTOR 1/10W 10K	3	
R1882	NRSA02J-101X	M.RESISTOR 1/10W 100	1	
R1890,91	NRSA02J-101X	M.RESISTOR 1/10W 100	2	
R1897,98	NRSA02J-472X	M.RESISTOR 1/10W 4.7K	2	
R1901-07	NRSA02J-101X	M.RESISTOR 1/10W 100	7	
⚠ R1910	NRSA02J-0R0X	M.RESISTOR 1/10W 0	1	
R1911	NRSA02J-472X	M.RESISTOR 1/10W 4.7K	1	
R1912	NRSA02J-272X	M.RESISTOR 1/10W 2.7K	1	
⚠ R1913	NRSA02J-223X	M.RESISTOR 1/10W 22K	1	
R1914-16	NRSA02J-473X	M.RESISTOR 1/10W 47K	3	

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Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
R1917,18	NRSA02J-101X	M.RESISTOR 1/10W 100	2	
R1919,20	NRSA02J-472X	M.RESISTOR 1/10W 4.7K	2	
RA1131-34	NRZ0040-103X	COMBI.R-R	4	
RA1135,36	NRZ0040-101X	COMBI.R-R	2	
RA1801,02	NRZ0040-101X	COMBI.R-R	2	
RA1803-05	NRZ0040-103X	COMBI.R-R	3	
RA1806-09	NRZ0040-101X	COMBI.R-R	4	
RA1810	NRZ0040-103X	COMBI.R-R	1	
RA1811-14	NRZ0040-101X	COMBI.R-R	4	
SK1101	CEMS007-008	IC SOCKET	1	
SK1801	CEMS007-008	IC SOCKET	1	
X1601	CE40749-001Z	CRYSTAL OSCILLATOR	1	
X1602	CE40668-001Z	CRYSTAL OSCILLATOR	1	
X1603	CSB503F30	CRYSTAL OSCILLATOR	1	
X1801	CST4.00MGW	CRYSTAL OSCILLATOR	1	
■ E2	FX-2072A	MAIN P.C.BOARD	1	(RTL)
C2401	QFLC1HJ-103Z	P.CAPACITOR 50V 0.01U	1	
C2402	QFV71HJ-334Z	P.CAPACITOR 50V 0.33U	1	
C2404	QEHR1VM-107Z	E.CAPACITOR 35V 100U	1	
C2405	QCB32HK-561Z	C.CAPACITOR 500V 560P	1	
C2406	QFLC1HJ-104Z	P.CAPACITOR 50V 100U	1	
C2407	QFLC1HJ-103Z	P.CAPACITOR 50V 0.01U	1	
C2409	QEHQ1EM-228	E.CAPACITOR 25V 2200U	1	
C2420	QEHQ1EM-228	E.CAPACITOR 25V 2200U	1	
C2501	QEZ0368-227	E.CAPACITOR 220U	1	
C2502	QFLC2AK-224Z	P.CAPACITOR 50V 0.22U	1	
C2503	QCB32HK-151Z	C.CAPACITOR 500V 150P	1	
C2504	QEZ0097-106R	E.CAPACITOR 160V 10U	1	
C2506	QCB32HK-152Z	C.CAPACITOR 500V 1500P	1	
C2507	QFLC1HJ-222Z	P.CAPACITOR 50V 2200P	1	
C2508,09	QEHR1CM-107Z	E.CAPACITOR 16V 100U	2	
C2510	QFV71HJ-474Z	P.CAPACITOR 50V 0.47U	1	
C2511	QFLC1HJ-122Z	P.CAPACITOR 50V 1200P	1	
C2512	QEHR1CM-227Z	E.CAPACITOR 16V 110U	1	
C2513,14	QFLC1HJ-472Z	P.CAPACITOR 50V 4700P	2	
C2515	QFLC1HJ-392Z	P.CAPACITOR 50V 3900P	1	
C2516	QFLC2AK-224Z	P.CAPACITOR 100V 0.22U	1	
C2517,18	QETN1HM-105Z	E.CAPACITOR 50V 1U	2	
⚠ C2521	QFZ0196-302	P.CAPACITOR 3000P	1	
C2522	QFLC1HJ-823Z	P.CAPACITOR 50V 0.082U	1	
⚠ C2523	QFZ0196-302	P.CAPACITOR 3000P	1	
C2524,25	QFLC2AJ-103Z	P.CAPACITOR 100V 0.01U	2	
C2527	QFLC1HJ-472Z	P.CAPACITOR 50V 4700P	1	
C2528	QETN1CM-107Z	E.CAPACITOR 16V 100U	1	
C2550	QETN1HM-475Z	E.CAPACITOR 50V 4.7U	1	
C2551	QFV71HJ-274Z	P.CAPACITOR 50V 0.27U	1	
⚠ C2552	QFZ0196-102	P.CAPACITOR 1000P	1	
C2553	QFV71HJ-274Z	P.CAPACITOR 50V 0.27U	1	
C2554	QEHQ2AM-227	E.CAPACITOR 100V 220U	1	
C2555	QFK62AK-334Z	P.CAPACITOR 100V 0.33U	1	
C2557	QETN1CM-337Z	E.CAPACITOR 16V 330U	1	
C2558	QENC1HM-105Z	E.CAPACITOR 50V 1U	1	
C2559,60	QEHR1HM-105Z	E.CAPACITOR 50V 1U	2	
C2562	QEHR2CM-336Z	E.CAPACITOR 160V 33U	1	
C2570	QEHR1HM-105Z	E.CAPACITOR 50V 1U	1	
C2571	QETN1HM-106Z	E.CAPACITOR 50V 10U	1	
C2601	QENC1HM-225Z	E.CAPACITOR 50V 2.2U	1	
C2602	QETN1HM-106Z	E.CAPACITOR 50V 10U	1	
C2604	QEHR2CM-336Z	E.CAPACITOR 160V 33U	1	
C2605	QENC1HM-106Z	E.CAPACITOR 50V 10U	1	
C2606	QFLC1HJ-472Z	P.CAPACITOR 50V 4700P	1	
C2607	QENC1HM-225Z	E.CAPACITOR 50V 2.2U	1	
C2620	QEHR1HM-336Z	E.CAPACITOR 50V 33U	1	
C2801	QETN1CM-228Z	E.CAPACITOR 16V 2200U	1	
C2802	QENC1HM-105Z	E.CAPACITOR 50V 1U	1	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
C2803	QFLC1HJ-332Z	P.CAPACITOR 50V 3300P	1	
C2804	QETN1HM-225Z	E.CAPACITOR 50V 2.2U	1	
C2805	QETN1HM-106Z	E.CAPACITOR 50V 10U	1	
C2806	QETN1HM-475Z	E.CAPACITOR 50V 4.7U	1	
C2807,08	QETN1HM-336Z	E.CAPACITOR 50V 33U	2	
C2809	QETN1CM-228Z	E.CAPACITOR 16V 2200U	1	
C2810,11	QFV71HJ-104Z	P.CAPACITOR 50V 0.1U	2	
C2812,13	QETN1CM-228Z	E.CAPACITOR 16V 2200U	2	
C2814	QETN1CM-227Z	E.CAPACITOR 16V 220U	1	
⚠ C2901	QFZ9036-104	P.CAPACITOR 250V 0.1U	1	
⚠ C2902-05	QCZ9078-472	C.CAPACITOR 250V 4700P	4	
⚠ C2906	QETM2GM-226	E.CAPACITOR 400V 22U	1	
C2908	QEZ0550-337	E.CAPACITOR 330U	1	
C2909	QCB32HK-472Z	C.CAPACITOR 500V 4700P	1	
C2910	QEHR1EM-107Z	E.CAPACITOR 25V 100U	1	
⚠ C2912,13	QCZ9075-472	C.CAPACITOR 4700P	2	
⚠ C2914	QFZ9036-104	C.CAPACITOR 250V 0.1U	1	
C2915	QCZ0122-681	C.CAPACITOR 680P	1	
C2916-19	QCB32HK-271Z	C.CAPACITOR 270P	4	
C2920	QTMN1EM-337Z	E.CAPACITOR 25V 330U	1	
C2921	QEHR1CM-107Z	E.CAPACITOR 16V 100U	1	
C2922	QEHR1CM-337Z	E.CAPACITOR 16V 330U	1	
C2923	QEZ0368-227	E.CAPACITOR 270U	1	
C2924	QETN1HM-106Z	E.CAPACITOR 50V 10U	1	
C2925	QETM2DM-337	E.CAPACITOR 200V 330U	1	
C2926	QETM1EM-228	E.CAPACITOR 25V 2200U	1	
C2927	QTMM1EM-228	E.CAPACITOR 25V 2200U	1	
C2928	QETN1HM-106Z	E.CAPACITOR 50V 10U	1	
C2929	QFV71HJ-224Z	P.CAPACITOR 50V 0.22U	1	
C2930	QETN1HM-106Z	E.CAPACITOR 50V 10U	1	
C2931	QEZ0256-228	E.CAPACITOR 2200U	1	
C2932	QEHR1CM-107Z	E.CAPACITOR 16V 100U	1	
C2933	QEZ0256-128	E.CAPACITOR 1200U	1	
C2934	QETN1CM-107Z	E.CAPACITOR 16V 100U	1	
C2935	QEHR1EM-477Z	E.CAPACITOR 25V 470U	1	
C2936	QETN1CM-228Z	E.CAPACITOR 16V 2200U	1	
C2937	QETN1HM-106Z	E.CAPACITOR 50V 10U	1	
C2939	QEHR1CM-107Z	E.CAPACITOR 16V 100U	1	
C2940	QFLC1HJ-103Z	P.CAPACITOR 50V 0.01U	1	
C2941	QFLC1HJ-102Z	P.CAPACITOR 50V 1000P	1	
C2942	QENC1HM-106Z	E.CAPACITOR 50V 10U	1	
C2943	QFLC1HJ-102Z	P.CAPACITOR 50V 1000P	1	
C2944	QTMN1EM-477Z	E.CAPACITOR 25V 470U	1	
C2950	QETN1CM-107Z	E.CAPACITOR 16V 100U	1	
C2952	QETN1CM-108Z	E.CAPACITOR 16V 1000U	1	
C2953	QFLC1HJ-103Z	P.CAPACITOR 50V 0.01U	1	
C2954	QETN1CM-227Z	E.CAPACITOR 16V 220U	1	
C2955	QEHR2CM-335Z	E.CAPACITOR 160V 3.3U	1	
C2958	QEHR1EM-107Z	E.CAPACITOR 25V 100U	1	
CN0S1	QGA2501C506Z	CONNECTOR	1	
CN200T	QGA2501C1-10	CONNECTOR	1	
CN200V	QGA3901C1-02	CONNECTOR	1	
CN200H	QGA3901C1-06	CONNECTOR	1	
⚠ CN200D	QGA7901C1-02	CONNECTOR	1	
⚠ CN200P	QGA7901C1-02	CONNECTOR	1	
⚠ CN20E3	CE41507-001P	CONNECTOR	1	
CN2011	QGB2501J1-10	CONNECTOR	1	
⚠ CP2901	QMFZ034-100Z	FUSE	1	
⚠ CP2904	ICP-N75-Y	IC PROTECTOR	1	
D2402,03	RD33EB2	DIODE	2	
D2404	1SR35-400A-T	DIODE	1	
⚠ D2412	1SS133	DIODE	1	
D2413,14	MTZJ6.8A	DIODE	2	
D2501	1SS244	DIODE	1	
D2502,03	MTZJ12C	DIODE	2	
D2504	RL4Z	DIODE	1	
⚠ D2505-07	1SS133	DIODE	3	
⚠ D2508	RGP10J	DIODE	1	
D2509,10	MTZJ5.6B	DIODE	2	
⚠ D2511	1SS133	DIODE	1	
D2512	AG01Z	DIODE	1	
D2513	1SS244	DIODE	1	

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Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
D2514	AG01Z	DIODE	1	
D2515	MTZJ5.1B	DIODE	1	
⚠ D2516	1SS133	DIODE	1	
D2517	RK14	DIODE	1	
D2520	RU4DSF1	DIODE	1	
D2521	CTU-G3DR	DIODE	1	
D2522	RG2A2LFC4	DIODE	1	
D2523	1SS244	DIODE	1	
D2550,51	1SR35-400A-T	DIODE	2	
⚠ D2552	RGP10J	DIODE	1	
⚠ D2555	RGP10J	DIODE	1	
D2602	MTZJ5.1B	DIODE	1	
D2603	MTZJ27B	DIODE	1	
D2801	MTZJ11A	DIODE	1	
⚠ D2802	1SS133	DIODE	1	
⚠ D2901	RBV-406	DIODE	1	
D2902	RU2LFA1	DIODE	1	
D2903,04	AG01Z	DIODE	2	
D2908	RM2CLFA1	DIODE	1	
D2909	AG01	DIODE	1	
D2910	SF6L20U	DIODE	1	
D2911,12	RG2ALFC4	DIODE	2	
⚠ D2913	RU3YXLFC4	DIODE	1	
⚠ D2914,15	1SS133	DIODE	2	
D2916,17	MTZJ3.3A	DIODE	2	
⚠ D2918	1SS133	DIODE	1	
D2919,20	MTZJ12C	DIODE	2	
⚠ D2921-23	1SS133	DIODE	3	
D2950	RK44LFT4	DIODE	1	
D2951	MTZJ5.6B	DIODE	1	
⚠ D2952	1SS133	DIODE	1	
⚠ F2901	QMF51D2-6R3J	FUSE	1	
IC2401	AN5539-LF	IC	1	
IC2510	JLC1562BN	IC	1	
IC2601	UPC4556C	IC	1	
⚠ IC2801	AN5265	IC	1	
⚠ IC2901	STR-F6658BF7	IC	1	
⚠ IC2902	QAL0256-001	IC	1	
IC2903	SE140N	IC	1	
IC2904	TA79012S	IC	1	
IC2905	BA12T	IC	1	
IC2906	BA05T	IC	1	
IC2907	SI8050S	IC	1	
IC2911	PQ30RV21	IC	1	
K2501	QQR0872-002	FERRITE BEAD	1	
K2502	QQR0872-001Y	FERRITE CORE	1	
L2501	QQLZ020-801	COIL	1	
L2502,03	QQR0666-001	COIL	2	
L2504	QQLZ020-801	COIL	1	
L2505	QQL42AK-821Z	COIL 820UH	1	
L2551	QQLZ018-380	COIL	1	
L2553	QQL50AK-221Z	COIL	1	
L2801	QQL244K-4R7Z	COIL 4.7UH	1	
⚠ L2901	QQR0676-004	COIL	1	
⚠ L2902	QQR0646-006	COIL	1	
L2904	QQL244K-100Z	COIL 10UH	1	
L2910	QQR0518-001	COIL	1	
L2911	QQL50AK-100Z	COIL	1	
⚠ PC2901	TLP721FD4-GR	PHOTO COUPLER	1	
⚠ PC2902	TLP759F/D4/	PHOTO COUPLER	1	
Q2401	2SC3311A/QR/	TRANSISTOR	1	
Q2501	IRF9630	FET	1	
Q2502	2SC5445	TRANSISTOR	1	
Q2503	2SC3311A/QR/	TRANSISTOR	1	
Q2504	2SA1309A/QR/	TRANSISTOR	1	
Q2505	2SC3311A/QR/	TRANSISTOR	1	
Q2506	2SB946/P/	TRANSISTOR	1	
Q2507	IRFZ14	FET	1	
Q2508	2SC3311A/QR/	TRANSISTOR	1	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
Q2511	2SC3311A/QR/	TRANSISTOR	1	
Q2512	DTC114ES	TRANSISTOR	1	
Q2513	2SA1370/E/	TRANSISTOR	1	
Q2514	DTC124ES	TRANSISTOR	1	
Q2550	2SK2459N-F54	FET	1	
Q2551	2SK2477	FET	1	
Q2601	2SC3311A/QR/	TRANSISTOR	1	
Q2602	2SD1271A-P	TRANSISTOR	1	
Q2603	2SB861/C/	TRANSISTOR	1	
Q2604	2SC1505/MLK/	TRANSISTOR	1	
Q2901,02	2SA1309A/QR/	TRANSISTOR	2	
Q2903,04	2SA1370/E/	TRANSISTOR	2	
Q2905	2SC3311A/QR/	TRANSISTOR	1	
Q2906	2SA1309A/QR/	TRANSISTOR	1	
Q2910	2SC3311A/QR/	TRANSISTOR	1	
Q2911	2SC2229/Y/	TRANSISTOR	1	
R2401,02	QRE141J-122Y	C.RESISTOR 1/4W 1.2K	2	
⚠ R2403,04	QRE141J-272Y	C.RESISTOR 1/4W 2.7K	2	
⚠ R2405	QRE141J-102Y	C.RESISTOR 1/4W 1K	1	
R2406	QRE141J-221Y	C.RESISTOR 1/4W 220	1	
R2407	QRE141J-0R0Y	C.RESISTOR 1/4W 0	1	
R2408	QRE141J-152Y	C.RESISTOR 1/4W 1.5K	1	
⚠ R2409	QRE141J-103Y	C.RESISTOR 1/4W 10K	1	
⚠ R2410	QRX029J-1R5	M.RESISTOR 1.5	1	
R2411	QRE121J-120Y	C.RESISTOR 1/4W 12	1	
⚠ R2412	QRE141J-102Y	C.RESISTOR 1/4W 1K	1	
R2419	QRG01GJ-101	M.RESISTOR 1W 100	1	
⚠ R2430	QRE141J-103Y	C.RESISTOR 1/4W 10K	1	
R2501	QRE141J-184Y	C.RESISTOR 1/4W 180K	1	
R2502	QRE141J-122Y	C.RESISTOR 1/4W 1.2K	1	
⚠ R2503	QRE141J-224Y	C.RESISTOR 1/4W 220K	1	
R2504	QRA14CF-3302	M.RESISTOR 1/4W 33K	1	
⚠ R2505	QRA14CF-2202	M.RESISTOR 1/4W 22K	1	
⚠ R2508	QRA14CF-5101	M.RESISTOR 1/4W 5.1K	1	
⚠ R2509	QRE141J-103Y	C.RESISTOR 1/4W 10K	1	
⚠ R2510	QRE141J-223Y	C.RESISTOR 1/4W 22K	1	
⚠ R2511	QRE141J-103Y	C.RESISTOR 1/4W 10K	1	
R2512	QRE141J-101Y	C.RESISTOR 1/4W 100	1	
R2513	QRE141J-100Y	C.RESISTOR 1/4W 10	1	
⚠ R2514	QRE141J-473Y	C.RESISTOR 1/4W 47K	1	
R2515	QRE141J-472Y	C.RESISTOR 1/4W 4.7K	1	
R2516	QRG01GJ-470	M.RESISTOR 1W 47	1	
⚠ R2517	QRE141J-102Y	C.RESISTOR 1/4W 1K	1	
R2518	QRX01GJ-R68	M.RESISTOR 1/4W 0.68	1	
R2519	QRT039J-1R0	M.RESISTOR 1/4W 1	1	
R2520	QRG039J-100	M.RESISTOR 3W 10	1	
R2521	QRE121J-101Y	C.RESISTOR 1/4W 100	1	
R2522,23	QRE141J-470Y	C.RESISTOR 1/4W 47	2	
R2524	QRX029J-2R2	M.RESISTOR 2.2	1	
R2525	QRE121J-124Y	C.RESISTOR 1/4W 120K	1	
R2526	QRE141J-153Y	C.RESISTOR 1/4W 15K	1	
⚠ R2527	QRE141J-102Y	C.RESISTOR 1/4W 1K	1	
⚠ R2528	QRE141J-103Y	C.RESISTOR 1/4W 10K	1	
R2529	QRE141J-0R0Y	C.RESISTOR 1/4W 0	1	
R2530	QRE121J-121Y	C.RESISTOR 1/4W 120	1	
R2531	QRE121J-221Y	C.RESISTOR 1/4W 220	1	
⚠ R2532,33	QRE141J-103Y	C.RESISTOR 1/4W 10K	2	
R2534	QRL029J-101	M.RESISTOR 1W 100	1	
R2535	QRE141J-152Y	C.RESISTOR 1/4W 1.5K	1	
R2536-38	QRE141J-153Y	C.RESISTOR 1/4W 15K	3	
R2539	QRE141J-471Y	C.RESISTOR 1/4W 470	1	
R2540,41	QRE141J-472Y	C.RESISTOR 1/4W 4.7K	2	
R2543	QRE141J-472Y	C.RESISTOR 1/4W 4.7K	1	
R2545-49	QRE141J-472Y	C.RESISTOR 1/4W 4.7K	5	
R2550	QRM059J-R15	M.RESISTOR 5W 0.15	1	
R2551	QRE121J-152Y	C.RESISTOR 1/4W 1.5K	1	
⚠ R2552	QRA14CF-2203	M.RESISTOR 1/4W 220K	1	
R2553	QRG029J-330	M.RESISTOR 2W 33	1	
⚠ R2555	QRE141J-473Y	C.RESISTOR 1/4W 47K	1	
⚠ R2556	QRZ9017-2R2	F.RESISTOR 1/4W 2.2	1	
⚠ R2557	QRE121J-330Y	C.RESISTOR 1/4W 33	1	
⚠ R2558,59	QRE141J-102Y	C.RESISTOR 1/4W 1K	2	
R2561	QRE141J-123Y	C.RESISTOR 1/4W 12K	1	
⚠ R2562	QRE141J-332Y	C.RESISTOR 1/4W 3.3K	1	

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Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
⚠ R2563	QRE141J-272Y	C.RESISTOR 1/4W 2.7K	1	
⚠ R2564	QRE141J-103Y	C.RESISTOR 1/4W 10K	1	
R2601	QRE141J-682Y	C.RESISTOR 1/4W 6.8K	1	
R2602	QRE141J-123Y	C.RESISTOR 1/4W 12K	1	
R2603	QRE141J-393Y	C.RESISTOR 1/4W 39K	1	
R2604	QRE141J-153Y	C.RESISTOR 1/4W 15K	1	
R2605	QRE121J-332Y	C.RESISTOR 1/4W 3.3K	1	
⚠ R2606,07	QRE141J-104Y	C.RESISTOR 1/4W 100K	2	
R2608	QRE141J-153Y	C.RESISTOR 1/4W 15K	1	
R2609	QRE141J-823Y	C.RESISTOR 1/4W 82K	1	
R2610	QRE141J-100Y	C.RESISTOR 1/4W 10	1	
⚠ R2611,12	QRE141J-104Y	C.RESISTOR 1/4W 100K	2	
R2620	QRE121J-2R2Y	C.RESISTOR 1/4W 2.2K	1	
R2621	QRE141J-474Y	C.RESISTOR 1/4W 470K	1	
⚠ R2622	QRE141J-332Y	C.RESISTOR 1/4W 3.3K	1	
R2623	QRE121J-683Y	C.RESISTOR 1/4W 68K	1	
R2624	QRE141J-271Y	C.RESISTOR 1/4W 270K	1	
R2801	QRE121J-181Y	C.RESISTOR 1/4W 180K	1	
R2802	QRE141J-562Y	C.RESISTOR 1/4W 5.6K	1	
⚠ R2803	QRE141J-102Y	C.RESISTOR 1/4W 1K	1	
⚠ R2804	QRE141J-103Y	C.RESISTOR 1/4W 10K	1	
⚠ R2805	QRE141J-102Y	C.RESISTOR 1/4W 1K	1	
R2807	QRE141J-221Y	C.RESISTOR 1/4W 220	1	
⚠ R2808	QRE141J-223Y	C.RESISTOR 1/4W 22K	1	
R2809	QRE141J-100Y	C.RESISTOR 1/4W 10	1	
⚠ R2810	QRZ9021-8R2	F.RESISTOR 8.2	1	
R2901	QRG039J-683	M.RESISTOR 3W 68	1	
R2902,03	QRM059J-R15	M.RESISTOR 5W 0.15	2	
⚠ R2904	QRK126J-681X	C.RESISTOR 1/4W 680	1	
⚠ R2905	QRE141J-332Y	C.RESISTOR 1/4W 3.3K	1	
R2906	QRE141J-472Y	C.RESISTOR 1/4W 4.7K	1	
⚠ R2907	QRE141J-332Y	C.RESISTOR 1/4W 3.3K	1	
R2910	QRL029J-683	M.RESISTOR 2W 68K	1	
R2911	QRE121J-220Y	C.RESISTOR 1/4W 22	1	
R2920	QRE141J-3R3Y	C.RESISTOR 1/4W 3.3	1	
⚠ R2921	QRE141J-103Y	C.RESISTOR 1/4W 10K	1	
R2922	QRE141J-392Y	C.RESISTOR 1/4W 3.9K	1	
⚠ R2923	QRE141J-102Y	C.RESISTOR 1/4W 1K	1	
R2924	QRE141J-122Y	C.RESISTOR 1/4W 1.2K	1	
R2925,26	QRE141J-5R6Y	C.RESISTOR 1/4W 5.6	2	
R2927	QRE141J-120Y	C.RESISTOR 1/4W 12	1	
R2929,30	QRE141J-1R5Y	C.RESISTOR 1/4W 1.5	2	
R2931	QRE141J-683Y	C.RESISTOR 1/4W 68K	1	
⚠ R2932,33	QRE141J-103Y	C.RESISTOR 1/4W 10K	2	
R2934	QRE141J-683Y	C.RESISTOR 1/4W 68K	1	
⚠ R2935	QRE141J-223Y	C.RESISTOR 1/4W 22K	1	
⚠ R2936,37	QRE141J-103Y	C.RESISTOR 1/4W 10K	2	
R2938	QRE141J-222Y	C.RESISTOR 1/4W 2.2K	1	
R2939	QRE141J-152Y	C.RESISTOR 1/4W 1.5K	1	
R2940	QRE141J-1R5Y	C.RESISTOR 1/4W 1.5	1	
⚠ R2941	QRA14CF-1501	C.RESISTOR 1/4W 1.5K	1	
⚠ R2942	QRA14CF-3900	C.RESISTOR 1/4W 390	1	
R2943	QRE141J-470Y	C.RESISTOR 1/4W 47	1	
⚠ R2944	QRE141J-102Y	C.RESISTOR 1/4W 1K	1	
R2945	QRE141J-222Y	C.RESISTOR 1/4W 2.2K	1	
R2946	QRE141J-1R5Y	C.RESISTOR 1/4W 1.5K	1	
R2947	QRE141J-3R3Y	C.RESISTOR 1/4W 3.3K	1	
⚠ R2948	QRE141J-102Y	C.RESISTOR 1/4W 1K	1	
R2949	QRE121J-152Y	C.RESISTOR 1/4W 1.5K	1	
R2970	QRE141J-821Y	C.RESISTOR 1/4W 820	1	
R2971	QRE141J-472Y	C.RESISTOR 1/4W 4.7K	1	
R2972	QRE141J-153Y	C.RESISTOR 1/4W 15K	1	
⚠ R2973	QRE141J-103Y	C.RESISTOR 1/4W 10K	1	
⚠ R2974	QRE141J-473Y	C.RESISTOR 1/4W 47K	1	
R2975	QRL039J-562	M.RESISTOR 3W 5.6K	1	
⚠ RY2901,02	QSK0119-001	RELAY	2	
SG2501	CE42447-242	SPARK GAP	1	
T2501	QQR0663-001	TRANSFORMER	1	
⚠ T2502	CJ39720-00A	TRANSFORMER	1	
⚠ T2503	QQH0087-001	TRANSFORMER	1	
T2601	CE42710-001	TRANSFORMER	1	
⚠ T2901	QQS0091-001	TRANSFORMER	1	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
⚠ TH2901	QAD0137-4R5	THERMISTOR	1	
TP2001,02	CM42818-001	TEST POINT	2	
W2104	QRE141J-152	C.RESISTOR 1/4W 1.5K	1	
⚠ Z2901	ERZV10V621CS	DIODE	1	
		MISCELLANEOUS		
	CM32201-00A	SCREW	2	
	CE41667-003	SHEET	1	
	QYSPSPD3010Z	SCREW	1	
	CM32201-00A	SCREW	2	
	QYSPSPD3010Z	SCREW	1	
⚠	CEMG002-001Z	FUSE CLIP	1	
	QYSPSPD3010Z	SCREW	1	
	CM32201-00A	SCREW	4	
■ E3	FX-2112A	S.CORRECTION P.C.BOARD	1	(RTL)
C2501	QFZ0197-335	P.CAPACITOR 3.3U	1	
⚠ C2502	QFZ0197-754	P.CAPACITOR 0.75U	1	
⚠ C2504	QFZ0197-754	P.CAPACITOR 0.75U	1	
⚠ C2505	QFZ0197-564	P.CAPACITOR 0.56U	1	
C2506,07	QFLC1HJ-473Z	P.CAPACITOR 50V 0.047U	2	
C2508	QFLC1HJ-153Z	P.CAPACITOR 50V 0.015U	1	
C2510	QCB32HK-152Z	C.CAPACITOR 500V 1500P	1	
C2511,12	QETN1CM-107Z	E.CAPACITOR 16V 100U	2	
C2513,14	QENC1CM-476Z	E.CAPACITOR 16V 47U	2	
C2515	QFLC1HJ-104Z	P.CAPACITOR 50V 0.1U	1	
C2516,17	QENC1CM-476Z	E.CAPACITOR 16V 47U	2	
C2518,19	QFLC1HJ-104Z	P.CAPACITOR 50V 0.1U	2	
CN20RD	QGA2501F1-06	CONNECTOR	1	
CN200R	QGA2501F1-03	CONNECTOR	1	
CN2011	QGB2501K2-10	CONNECTOR	1	
⚠ D2501	1SS133	DIODE	1	
D2502	1SS244	DIODE	1	
⚠ D2520-25	1SS133	DIODE	6	
IC2501	LA6515	IC	1	
IC2502	BA15218N	IC	1	
L2501	QQR0915-006	COIL	1	
L2502	QQR0664-002	COIL	1	
Q2501-04	IRF640	FET	4	
Q2507-09	2SC3311A/QR/	TRANSISTOR	3	
Q2511,12	2SC3311A/QR/	TRANSISTOR	2	
⚠ R2501-03	QRE141J-102Y	C.RESISTOR 1/4W 1K	3	
⚠ R2504	QRE141J-473Y	C.RESISTOR 1/4W 47K	1	
⚠ R2505	QRA14CF-9312	M.RESISTOR	1	
⚠ R2506-08	QRE141J-272Y	C.RESISTOR 1/4W 2.7K	3	
⚠ R2510	QRE141J-272Y	C.RESISTOR 1/4W 2.7K	1	
R2511	QRE141J-183Y	C.RESISTOR 1/4W 18K	1	
R2512	QRL039J-561	M.RESISTOR 3W 560	1	
⚠ R2513	QRA14CF-2102	M.RESISTOR 1/4W 21K	1	
R2514	QRL029J-101	M.RESISTOR 2W 100	1	
R2515	QRL029J-470	M.RESISTOR 2W 47	1	
R2516	QRE141J-472Y	C.RESISTOR 1/4W 4.7K	1	
⚠ R2517	QRE141J-473Y	C.RESISTOR 1/4W 47K	1	
R2518	QRE141J-273Y	C.RESISTOR 1/4W 27K	1	
⚠ R2519	QRE141J-102Y	C.RESISTOR 1/4W 1K	1	
R2520	QRE141J-182Y	C.RESISTOR 1/4W 1.8K	1	
R2521	QRE141J-682Y	C.RESISTOR 1/4W 6.8K	1	
R2524	QRG01GJ-560	M.RESISTOR 1W 56	1	

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Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
⚠ R2525	QRE141J-681Y	C.RESISTOR 1/4W 680	1	
R2526-29	QRE141J-821Y	C.RESISTOR 1/4W 820	4	
R2530,31	QRG01GJ-391	M.RESISTOR 1W 390	2	
⚠ RY2501	CESK028-001	RELAY	1	
S2501	QSL4A13-C03Z	SWITCH	1	
TP-G,XR	CM42818-001	TEST POINT	2	
VR2501	QVP0055-502Z	V.RESISTOR 500	1	
VR2502	QVP0055-503Z	V.RESISTOR 50K	1	
VR2504,05	QVP0055-103Z	V.RESISTOR 10K	2	
■ E4	FX-3065A	CRT P.C.BOARD	1	(RTL)
C3001	QEHQ1EM-228	E.CAPACITOR 25V 2200U	1	
C3002	NCB21HK-103X	C.CAPACITOR 50V 0.01U	1	
C3003	QEHR2CM-336Z	E.CAPACITOR 160V 33U	1	
C3004	NDC21HJ-471X	C.CAPACITOR 50V 470P	1	
C3005	QFP32GK-563	P.CAPACITOR 400V 0.056U	1	
C3006	NCB21HK-103X	C.CAPACITOR 50V 0.01U	1	
C3008	QCZ0324-102	C.CAPACITOR 1000P	1	
C3009	QETN1CM-107Z	E.CAPACITOR 16V 100U	1	
⚠ C3010	QETM2EM-336	E.CAPACITOR 250V 33U	1	
C3011	QEHR2CM-336Z	E.CAPACITOR 160V 33U	1	
C3012	QETN2EM-106Z	E.CAPACITOR 250V 10U	1	
C3013	QFV71HJ-154Z	P.CAPACITOR 50V 0.15U	1	
C3101	NDC21HJ-820X	C.CAPACITOR 50V 82P	1	
C3201	NDC21HJ-101X	C.CAPACITOR 50V 100P	1	
C3301	NDC21HJ-181X	C.CAPACITOR 50V 180P	1	
⚠ CN30E1	CE41507-001P	CONNECTOR	1	
CN30SC	QGZ0017C101Z	CONNECTOR	1	
D3001,02	MA111	DIODE	2	
⚠ D3003	1SS82	DIODE	1	
D3004,05	1SR124-400A	DIODE	2	
D3006	MA111	DIODE	1	
D3007	MA3051-M	DIODE	1	
D3008	RU2	DIODE	1	
⚠ D3009	1SS82	DIODE	1	
D3010,11	MA111	DIODE	2	
D3013	MA111	DIODE	1	
D3014	MA3110-M	DIODE	1	
D3015-17	MA111	DIODE	3	
D3101	MA111	DIODE	1	
D3103-05	MA111	DIODE	3	
D3201	MA111	DIODE	1	
D3203-05	MA111	DIODE	3	
D3301	MA111	DIODE	1	
D3303-05	MA111	DIODE	3	
IC3001	VPS13S	IC	1	
L3001	QQL01BK-102Z	COIL 1000UH	1	
L3002	QQL50AK-330Z	COIL 33UH	1	
Q3001	2SC1505/MLK/	TRANSISTOR	1	
Q3002	2SA965/0Y/	TRANSISTOR	1	
Q3003	2SC2235/0Y/	TRANSISTOR	1	
Q3004	2SC2229/Y/	TRANSISTOR	1	
Q3007	2SC2412K/QR/	TRANSISTOR	1	
Q3008	2SA1037AK/QR	TRANSISTOR	1	
Q3009	2SC2412K/QR/	TRANSISTOR	1	
Q3101	2SA1321	TRANSISTOR	1	
Q3201	2SA1321	TRANSISTOR	1	
Q3301	2SA1321	TRANSISTOR	1	
R3001	NRSA02J-103X	M.RESISTOR 1/10W 10K	1	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
R3002	NRSA02J-332X	M.RESISTOR 1/10W 3.3K	1	
R3003	NRSA02J-103X	M.RESISTOR 1/10W 10K	1	
R3004	NRSA02J-680X	M.RESISTOR 1/10W 68	1	
R3005	QRL029J-152	M.RESISTOR 2W 1.5K	1	
R3006	QRL029J-182	M.RESISTOR 2W 1.8K	1	
R3007	QRK126J-474X	C.RESISTOR 1/2W 470K	1	
⚠ R3008	QRZ9017-471	F.RESISTOR 470	1	
⚠ R3009	QRK126J-223X	C.RESISTOR 1/2W 22K	1	
R3011	NRSA02J-103X	M.RESISTOR 1/10W 10K	1	
R3012	QRK126J-152X	C.RESISTOR 1/2W 1.5K	1	
⚠ R3013,14	QRZ9011-100	F.RESISTOR 10	2	
R3017	NRSA02J-273X	M.RESISTOR 1/10W 27K	1	
R3018	NRSA02J-104X	M.RESISTOR 1/10W 100K	1	
⚠ R3019	NRSA02J-0R0X	M.RESISTOR 1/10W 0	1	
⚠ R3021	QRK126J-102X	C.RESISTOR 1/2W 1K	1	
R3022	NRSA02J-122X	M.RESISTOR 1/10W 1.2K	1	
R3023	NRSA02J-103X	M.RESISTOR 1/10W 10K	1	
R3024	NRSA02J-332X	M.RESISTOR 1/10W 3.3K	1	
R3025	NRSA02J-103X	M.RESISTOR 1/10W 10K	1	
R3026	NRSA02J-152X	M.RESISTOR 1/10W 1.5K	1	
R3027	NRSA02J-153X	M.RESISTOR 1/10W 15K	1	
R3028	NRSA02J-152X	M.RESISTOR 1/10W 1.5K	1	
R3029	QRK126J-473X	C.RESISTOR 1/2 47K	1	
R3101	NRSA02J-101X	M.RESISTOR 1/10W 100	1	
⚠ R3102	QRK126J-331X	C.RESISTOR 1/2W 330	1	
R3103	NRSA02J-680X	M.RESISTOR 1/10W 68	1	
R3104	NRSA02J-101X	M.RESISTOR 1/10W 100	1	
⚠ R3106	NRSA02J-0R0X	M.RESISTOR 1/10W 0	1	
R3108	NRSA02J-560X	M.RESISTOR 1/10W 56	1	
R3109	QRL039J-472	M.RESISTOR 3W 4.7K	1	
⚠ R3110	QRZ9017-471	F.RESISTOR 470	1	
R3201	NRSA02J-101X	M.RESISTOR 1/10W 100	1	
⚠ R3202	QRK126J-331X	C.RESISTOR 1/2W 330	1	
R3203	NRSA02J-270X	M.RESISTOR 1/10W 27	1	
R3204	NRSA02J-101X	M.RESISTOR 1/10W 100	1	
⚠ R3206	NRSA02J-0R0X	M.RESISTOR 1/10W 0	1	
R3208	NRSA02J-560X	M.RESISTOR 1/10W 56	1	
R3209	QRL039J-472	M.RESISTOR 3W 4.7K	1	
⚠ R3210	QRZ9017-471	F.RESISTOR 470	1	
R3301	NRSA02J-101X	M.RESISTOR 1/10W 100	1	
⚠ R3302	QRK126J-331X	C.RESISTOR 1/2W 330	1	
R3303,04	NRSA02J-101X	M.RESISTOR 1/10W 100	2	
⚠ R3306	NRSA02J-0R0X	M.RESISTOR 1/10W 0	1	
R3308	NRSA02J-560X	M.RESISTOR 1/10W 56	1	
R3309	QRL039J-472	M.RESISTOR 3W 4.7K	1	
⚠ R3310	QRZ9017-471	F.RESISTOR 470	1	
SG3001	CE42447-242	SPARK GAP	1	
SG3101	QAF0006-201	SPARK GAP	1	
SG3201	QAF0006-201	SPARK GAP	1	
SG3301	QAF0006-201	SPARK GAP	1	
⚠ SK3001	CE42670-002	DISPLAY SOCKET	1	
TP-GND	CM42818-001	TEST POINT	1	
TP-47B	CM42818-001	TEST POINT	1	
TP-47G	CM42818-001	TEST POINT	1	
TP-47R	CM42818-001	TEST POINT	1	
		MISCELLANEOUS		
	QYSPSPD3010Z	SCREW	1	
■ E5	FX-4073A	FRONT CONTROL P.C.BOARD	1	(RTL)
C4101	NEH71CM-476X	E.CAPACITOR 16V 47U	1	
C4102	NCF21HZ-103X	C.CAPACITOR 50V 0.01U	1	
D4101-19	MA111	DIODE	19	
D4120	GL3ED8	LED	1	

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Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
IC4101	JLC1562BF	IC	1	
Q4101	2SA1037AK/QR	TRANSISTOR	1	
Q4102-05	2SC2412K/QR/	TRANSISTOR	4	
Q4106-11	2SA1037AK/QR	TRANSISTOR	6	
Q4112-14	2SC2412K/QR/	TRANSISTOR	3	
Q4120	2SC2412K/QR/	TRANSISTOR	1	
R4101	NRSA02J-391X	M.RESISTOR 1/10W 390	1	
R4102	NRSA02J-470X	M.RESISTOR 1/10W 47	1	
R4103	NRSA02J-391X	M.RESISTOR 1/10W 390	1	
R4104	NRSA02J-103X	M.RESISTOR 1/10W 10K	1	
R4105	NRSA02J-391X	M.RESISTOR 1/10W 390	1	
R4106	NRSA02J-103X	M.RESISTOR 1/10W 10K	1	
R4107	NRSA02J-391X	M.RESISTOR 1/10W 390	1	
R4108	NRSA02J-103X	M.RESISTOR 1/10W 10K	1	
R4109	NRSA02J-391X	M.RESISTOR 1/10W 390	1	
R4110	NRSA02J-103X	M.RESISTOR 1/10W 10K	1	
R4111	NRSA02J-391X	M.RESISTOR 1/10W 390	1	
R4112	NRSA02J-103X	M.RESISTOR 1/10W 10K	1	
R4113	NRSA02J-391X	M.RESISTOR 1/10W 390	1	
R4114	NRSA02J-103X	M.RESISTOR 1/10W 10K	1	
R4119	NRSA02J-391X	M.RESISTOR 1/10W 390	1	
R4120	NRSA02J-103X	M.RESISTOR 1/10W 10K	1	
R4121	NRSA02J-391X	M.RESISTOR 1/10W 390	1	
R4122	NRSA02J-103X	M.RESISTOR 1/10W 10K	1	
R4123	NRSA02J-391X	M.RESISTOR 1/10W 390	1	
R4124	NRSA02J-103X	M.RESISTOR 1/10W 10K	1	
R4125	NRSA02J-391X	M.RESISTOR 1/10W 390	1	
R4126	NRSA02J-103X	M.RESISTOR 1/10W 10K	1	
R4127	NRSA02J-391X	M.RESISTOR 1/10W 390	1	
R4128	NRSA02J-103X	M.RESISTOR 1/10W 10K	1	
R4129	NRSA02J-391X	M.RESISTOR 1/10W 390	1	
R4130	NRSA02J-103X	M.RESISTOR 1/10W 10K	1	
R4131	NRSA02J-391X	M.RESISTOR 1/10W 390	1	
R4132-42	NRSA02J-103X	M.RESISTOR 1/10W 10K	11	
R4150	NRSA02J-123X	M.RESISTOR 1/10W 12K	1	
⚠ R4151,52	NRSA02J-102X	M.RESISTOR 1/10W 1K	2	
S4101	QSW0619-003Z	SWITCH	1	
S4102-11	QSW0889-001	SWITCH	10	
S4112	QSW0619-003Z	SWITCH	1	
S4113-15	QSW0889-001	SWITCH	3	
S4116-19	QSW0619-003Z	SWITCH	4	
		MISCELLANEOUS		
	LC40656-001A	SPACER	1	
■ E6	FX-5023A	FRONT VR P.C.BOARD	1	(RTL)
C5101	QETN1CM-107Z	E.CAPACITOR 16V 100U	1	
C5102	NCF21HZ-103X	C.CAPACITOR 50V 0.01U	1	
CN500A	QGA2501F1-06	CONNECTOR	1	
D5101-04	MA3056-M	DIODE	4	
R5101-04	NRSA02J-333X	M.RESISTOR 1/10W 33K	4	
VR5101-04	QVQ0286-B14	V.RESISTOR	4	
■ E7	FX-6081A	MOTHER P.C.BOARD	1	(RTL)

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
C6101	QETN1CM-107Z	E.CAPACITOR 16V 100U	1	
C6102	NCF21HZ-103X	C.CAPACITOR 50V 0.01U	1	
C6103	QETN1CM-107Z	E.CAPACITOR 16V 100U	1	
C6104	NCF21HZ-103X	C.CAPACITOR 50V 0.01U	1	
C6105-18	QETN1EM-476Z	E.CAPACITOR 25V 47U	14	
C6119	QETN1CM-107Z	E.CAPACITOR 16V 100U	1	
C6120	NCF21HZ-103X	C.CAPACITOR 50V 0.01U	1	
C6121-26	QETN1HM-106Z	E.CAPACITOR 50V 10U	6	
C6127	QETN1EM-476Z	E.CAPACITOR 25V 47U	1	
C6128-33	QETN1HM-106Z	E.CAPACITOR 50V 10U	6	
C6137	QETN1CM-107Z	E.CAPACITOR 16V 100U	1	
C6138	NCF21HZ-103X	C.CAPACITOR 50V 0.01U	1	
C6139-43	QETN1EM-476Z	E.CAPACITOR 25V 47U	5	
C6145-47	NDC21HJ-100X	C.CAPACITOR 50V 10U	3	
C6201	QETN1EM-476Z	E.CAPACITOR 25V 47U	1	
C6202	NCF21HZ-104X	C.CAPACITOR 50V 0.1U	1	
C6203	QEHQ1EM-228	E.CAPACITOR 25V 2200U	1	
C6204	QETN1EM-476Z	E.CAPACITOR 25V 47U	1	
C6205	NCF21HZ-104X	C.CAPACITOR 50V 0.1U	1	
C6206	QETN1CM-107Z	E.CAPACITOR 16V 100U	1	
C6207,08	NCF21HZ-224X	C.CAPACITOR 50V 0.22U	2	
IC6101,02	TC4052BF	IC	2	
IC6103	JLC1562BF	IC	1	
IC6104,05	M52055FP	IC	2	
IC6106-09	NJM2234MA	IC	4	
IC6110	TC4052BF	IC	1	
IC6111	M52055FP	IC	1	
IC6201	BA12FP	IC	1	
IC6202	BA05FP	IC	1	
Q6101-03	2SC2412K/QR/	TRANSISTOR	3	
⚠ R6101-09	NRSA02J-223X	M.RESISTOR 1/10W 22K	9	
R6113	NRSA02J-103X	M.RESISTOR 1/10W 10K	1	
R6117	NRSA02J-103X	M.RESISTOR 1/10W 10K	1	
R6118	NRSA02J-183X	M.RESISTOR 1/10W 18K	1	
R6119	NRSA02J-333X	M.RESISTOR 1/10W 33K	1	
⚠ R6120	NRSA02J-102X	M.RESISTOR 1/10W 1K	1	
R6121	NRSA02J-183X	M.RESISTOR 1/10W 18K	1	
R6122	NRSA02J-333X	M.RESISTOR 1/10W 33K	1	
R6123	NRSA02J-332X	M.RESISTOR 1/10W 3.3K	1	
R6124	NRSA02J-183X	M.RESISTOR 1/10W 18K	1	
R6125	NRSA02J-333X	M.RESISTOR 1/10W 33K	1	
R6126	NRSA02J-332X	M.RESISTOR 1/10W 3.3K	1	
R6133	NRSA02J-103X	M.RESISTOR 1/10W 10K	1	
R6150-67	NRSA02J-103X	M.RESISTOR 1/10W 10K	18	
⚠ R6168	NRSA02J-0R0X	M.RESISTOR 1/10W 0	1	
■ E8	FX-7027A	TALLY P.C.BOARD	1	(RTL)
D7101-10	SML-211UT	LED	10	
R7101-05	NRSA02J-181X	M.RESISTOR 1/10W 180	5	
■ E9	FX-8027A	REMOTE P.C.BOARD	1	(RTL)
C8101,02	NEH71HM-105X	E.CAPACITOR 50V 1U	2	
C8103	NEH70JM-107X	E.CAPACITOR 6.3V 100U	1	
C8104-06	NEH71HM-105X	E.CAPACITOR 50V 1U	3	
D8101-16	MA3120-M	DIODE	16	
D8117-44	MA111	DIODE	28	
IC8101	ADM237LJR	IC	1	

Components identified with the mark ⚠ have the special characterisitics for safety.
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Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
IC8102,03	JLC1562BF	IC	2	
R8101-08	NRSA02J-151X	M.RESISTOR 1/10W 150	8	
R8109-12	NRZ0040-101X	COMBI.R-R	4	
R8123-40	NRSA02J-103X	M.RESISTOR 1/10W 10K	18	
■ E10	FX-M025A	SUB DEF P.C.BOARD	1	(RTL)
C0001	NDC21HJ-271X	C.CAPACITOR 50V 270P	1	
C0002	NCB21HK-104X	C.CAPACITOR 50V 0.1U	1	
C0003	QETN1AM-227Z	E.CAPACITOR 10V 220U	1	
C0004	NDC21HJ-102X	C.CAPACITOR 50V 1000P	1	
C0010	QETN1EM-476Z	E.CAPACITOR 25V 47U	1	
C0011,12	NCB21HK-104X	C.CAPACITOR 50V 0.1U	2	
C0013	QETN1EM-476Z	E.CAPACITOR 25V 47U	1	
C0014	NCB21HK-104X	C.CAPACITOR 50V 0.1U	1	
C0015	QETN1EM-476Z	E.CAPACITOR 25V 47U	1	
C0020	QETN1CM-477Z	E.CAPACITOR 16V 470U	1	
C0401	QFV71HJ-184Z	P.CAPACITOR 50V 0.18U	1	
C0402	NCB11CK-105X	C.CAPACITOR 16V 1U	1	
C0403	QENC1CM-336Z	E.CAPACITOR 16V 33U	1	
C0404	QETN1EM-476Z	E.CAPACITOR 25V 47U	1	
C0405	QENC1AM-107Z	E.CAPACITOR 10V 100U	1	
C0406	NDC21HJ-151X	C.CAPACITOR 50V 150P	1	
C0407	QENC1CM-106Z	E.CAPACITOR 16V 10U	1	
C0408	QETN1HM-106Z	E.CAPACITOR 50V 10U	1	
C0409	NCB21HK-104X	C.CAPACITOR 50V 0.1U	1	
C0410	QETN1EM-476Z	E.CAPACITOR 25V 47U	1	
C0503	NCB21EK-104X	C.CAPACITOR 25V 0.1U	1	
C0504	NCB21HK-104X	C.CAPACITOR 50V 0.1U	1	
C0505	NDC21HJ-102X	C.CAPACITOR 50V 1000P	1	
C0506	QETN1CM-477Z	E.CAPACITOR 16V 470U	1	
C0508	NCB21HK-682X	C.CAPACITOR 50V 6800P	1	
C0509	QETN1EM-476Z	E.CAPACITOR 25V 47U	1	
C0510	QETN1HM-106Z	E.CAPACITOR 50V 10U	1	
C0511	QETN1EM-476Z	E.CAPACITOR 25V 47U	1	
C0512	NCB21HK-104X	C.CAPACITOR 50V 0.1U	1	
C0513	QETN1HM-106Z	E.CAPACITOR 50V 10U	1	
C0514	QETN1HM-105Z	E.CAPACITOR 50V 1U	1	
C0515	NDC21HJ-271X	C.CAPACITOR 50V 270P	1	
C0516	QETN1HM-225Z	E.CAPACITOR 50V 2.2U	1	
C0521	QENC1HM-106Z	E.CAPACITOR 50V 10U	1	
C0524	NCB21HK-472X	C.CAPACITOR 50V 4700P	1	
C0525	QETN1HM-226Z	E.CAPACITOR 50V 22U	1	
C0526	QETN1EM-476Z	E.CAPACITOR 25V 47U	1	
C0527,28	NCB21HK-103X	C.CAPACITOR 50V 0.01U	2	
C0529	QETN1HM-475Z	E.CAPACITOR 50V 4.7U	1	
C0530	NCB21HK-473X	C.CAPACITOR 50V 0.047U	1	
C0531	NDC21HJ-102X	C.CAPACITOR 50V 1000P	1	
C0532	NDC21HJ-101X	C.CAPACITOR 50V 100U	1	
C0533	NCB21HK-392X	C.CAPACITOR 50V 3900P	1	
C0534	QETN1CM-107Z	E.CAPACITOR 16V 100U	1	
C0535,36	NCB21HK-332X	C.CAPACITOR 50V 3300P	2	
C0537	QETN1HM-106Z	E.CAPACITOR 50V 10U	1	
C0541	NCB21HK-153X	C.CAPACITOR 50V 0.015U	1	
C0542	QENC1CM-476Z	E.CAPACITOR 16V 47U	1	
C0543	NCB21HK-103X	C.CAPACITOR 50V 0.01U	1	
C0554	NCB21HK-153X	C.CAPACITOR 50V 0.015U	1	
C0556	NDC21HJ-152X	C.CAPACITOR 50V 1500P	1	
CN0001-03	CHB105W-15RJ	CONNECTOR	3	
D0401-03	MA111	DIODE	3	
D0501	MA3051-M	DIODE	1	
D0503	MA111	DIODE	1	
D0505-09	MA111	DIODE	5	
IC0001	UPC1884CT	IC	1	
IC0002	FA5301BN	IC	1	
IC0003-06	UPC4558G	IC	4	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
L0001	NQL02BJ-101X	COIL 100UH	1	
Q0401	2SC2412K/QR/	DIODE	1	
Q0402,03	DTC124EK	DIODE	2	
Q0503	2SC2412K/QR/	DIODE	1	
Q0504	DTC124EK	DIODE	1	
Q0505	2SA1037AK/QR	DIODE	1	
Q0506	2SC2412K/QR/	DIODE	1	
Q0507	2SA1037AK/QR	DIODE	1	
Q0510	2SC2412K/QR/	DIODE	1	
R0001	NRSA02J-473X	M.RESISTOR 1/10W 47K	1	
⚠ R0002,03	NRSA02J-220X	M.RESISTOR 1/10W 22	2	
R0004	NRSA02J-472X	M.RESISTOR 1/10W 4.7K	1	
⚠ R0006	NRSA02J-0R0X	M.RESISTOR 1/10W 0	1	
⚠ R0007,08	NRSA02J-102X	M.RESISTOR 1/10W 1K	2	
⚠ R0010-14	NRSA02J-182X	M.RESISTOR 1/10W 1.8K	5	
R0401	NRSA02J-103X	M.RESISTOR 1/10W 10K	1	
R0402	NRSA02D-822X	M.RESISTOR 1/10W 8.2K	1	
R0404	NRSA02D-224X	M.RESISTOR 1/10W 220K	1	
R0405	NRSA02D-562X	M.RESISTOR 1/10W 5.6K	1	
R0406	NRSA02J-103X	M.RESISTOR 1/10W 10K	1	
R0407	NRSA02D-682X	M.RESISTOR 1/10W 6.8K	1	
R0408	NRSA02D-123X	M.RESISTOR 1/10W 12K	1	
R0409	NRSA02D-183X	M.RESISTOR 1/10W 18K	1	
⚠ R0410	NRSA02J-0R0X	M.RESISTOR 1/10W 0	1	
R0414	NRSA02D-104X	M.RESISTOR 1/10W 100K	1	
⚠ R0415	NRSA02J-0R0X	M.RESISTOR 1/10W 0	1	
R0416	NRSA02D-222X	M.RESISTOR 1/10W 2.2K	1	
R0417	NRSA02D-682X	M.RESISTOR 1/10W 6.8K	1	
R0418	NRSA02J-101X	M.RESISTOR 1/10W 100	1	
R0419	NRSA02J-474X	M.RESISTOR 1/10W 470K	1	
R0420,21	NRSA02J-473X	M.RESISTOR 1/10W 47K	2	
R0503	NRSA02J-822X	M.RESISTOR 1/10W 8.2K	1	
R0505	NRSA02D-822X	M.RESISTOR 1/10W 8.2K	1	
⚠ R0506	NRSA02J-392X	M.RESISTOR 1/10W 3.9K	1	
R0507	NRSA02J-224X	M.RESISTOR 1/10W 220K	1	
⚠ R0508	NRSA02J-0R0X	M.RESISTOR 1/10W 0	1	
R0509	NRSA02J-222X	M.RESISTOR 1/10W 2.2K	1	
R0512	NRSA02J-472X	M.RESISTOR 1/10W 4.7K	1	
R0513	NRSA02J-103X	M.RESISTOR 1/10W 10K	1	
R0514,15	NRSA02J-472X	M.RESISTOR 1/10W 4.7K	2	
R0516	NRSA02J-100X	M.RESISTOR 1/10W 10	1	
R0519	NRSA02J-123X	M.RESISTOR 1/10W 12K	1	
⚠ R0520	NRSA02J-393X	M.RESISTOR 1/10W 39K	1	
R0521	NRSA02J-273X	M.RESISTOR 1/10W 27K	1	
⚠ R0522	NRSA02J-150X	M.RESISTOR 1/10W 15	1	
⚠ R0523	NRSA02J-682X	M.RESISTOR 1/10W 6.8K	1	
R0524	NRSA02J-472X	M.RESISTOR 1/10W 4.7K	1	
⚠ R0525	NRSA02J-102X	M.RESISTOR 1/10W 1K	1	
R0527,28	NRSA02J-104X	M.RESISTOR 1/10W 100K	2	
R0529	NRSA02J-823X	M.RESISTOR 1/10W 82K	1	
R0530	NRSA02J-273X	M.RESISTOR 1/10W 27K	1	
R0533	NRSA02J-104X	M.RESISTOR 1/10W 100K	1	
R0534	NRSA02J-473X	M.RESISTOR 1/10W 47K	1	
R0535	NRSA02J-104X	M.RESISTOR 1/10W 100K	1	
⚠ R0536	NRSA02J-393X	M.RESISTOR 1/10W 39K	1	
⚠ R0537	NRSA02J-182X	M.RESISTOR 1/10W 1.8K	1	
R0538	NRSA02J-123X	M.RESISTOR 1/10W 12K	1	
R0539	NRSA02J-333X	M.RESISTOR 1/10W 33K	1	
R0540	NRSA02J-562X	M.RESISTOR 1/10W 5.6K	1	
R0541	NRSA02J-333X	M.RESISTOR 1/10W 33K	1	
R0542	NRSA02J-153X	M.RESISTOR 1/10W 15K	1	
R0543,44	NRSA02J-472X	M.RESISTOR 1/10W 4.7K	2	
R0545	NRSA02J-103X	M.RESISTOR 1/10W 10K	1	
R0546	NRSA02J-472X	M.RESISTOR 1/10W 4.7K	1	
R0547	NRSA02J-222X	M.RESISTOR 1/10W 2.2K	1	
R0548	NRSA02J-104X	M.RESISTOR 1/10W 100K	1	
R0549	NRSA02J-121X	M.RESISTOR 1/10W 120	1	
⚠ R0550	NRSA02J-102X	M.RESISTOR 1/10W 1K	1	
R0552	NRSA02J-472X	M.RESISTOR 1/10W 4.7K	1	
R0553-55	NRSA02J-103X	M.RESISTOR 1/10W 10K	3	
R0556	NRSA02D-822X	M.RESISTOR 1/10W 8.2K	1	
⚠ R0557	NRSA02J-102X	M.RESISTOR 1/10W 1K	1	

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Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
R0558,59	NRSA02J-103X	M.RESISTOR 1/10W 10K	2	
SV	LC40030-002A	SHEET	1	
X0501	CSB500E	CRYSTAL OSCILLATOR	1	
■ E11	FX-M026A	HV CONTROL P.C.BOARD	1	(RTL)
C0501,02	NCB21HK-104X	C.CAPACITOR 50V 0.1U	2	
C0503	NDC21HJ-681X	C.CAPACITOR 50V 680P	1	
C0504	NDC21HJ-102X	C.CAPACITOR 50V 1000P	1	
C0505	NCB21HK-103X	C.CAPACITOR 50V 0.01U	1	
C0506	NCB21HK-272X	C.CAPACITOR 50V 2700P	1	
C0507,08	NDC21HJ-471X	C.CAPACITOR 50V 470P	2	
C0509	NCB21HK-104X	C.CAPACITOR 50V 0.1U	1	
C0511	NDC21HJ-560X	C.CAPACITOR 50V 56P	1	
CN0004	CHB105W-15RJ	CONNECTOR	1	
D0501	MA3120-M	DIODE	1	
D0502	MA3056-M	DIODE	1	
D0503-08	MA111	DIODE	6	
IC0501	TLC555ID	IC	1	
IC0502	BA15218F	IC	1	
IC0503	BA10339FV	IC	1	
Q0501	2SC2412K/QR/	TRANSISTOR	1	
Q0502,03	2SA1037AK/QR	TRANSISTOR	2	
R0501	NRSA02J-680X	M.RESISTOR 1/10W 68	1	
R0502	NRSA02J-101X	M.RESISTOR 1/10W 100	1	
R0503	NRSA02J-681X	M.RESISTOR 1/10W 680	1	
R0504	NRSA02J-332X	M.RESISTOR 1/10W 3.3K	1	
R0505	NRSA02J-103X	M.RESISTOR 1/10W 10K	1	
R0506	NRSA02J-473X	M.RESISTOR 1/10W 47K	1	
R0507	NRSA02F-222X	M.RESISTOR 1/10W 2.2K	1	
⚠ R0508	NRSA02J-102X	M.RESISTOR 1/10W 1K	1	
R0509,10	NRSA02J-333X	M.RESISTOR 1/10W 33K	2	
R0511	NRSA02F-912X	M.RESISTOR 1/10W 9.1K	1	
R0512,13	NRSA02J-222X	M.RESISTOR 1/10W 2.2K	2	
R0514	NRSA02J-272X	M.RESISTOR 1/10W 2.7K	1	
R0515	NRSA02J-331X	M.RESISTOR 1/10W 330	1	
R0516	NRSA02F-912X	M.RESISTOR 1/10W 9.1K	1	
R0517	NRSA02J-103X	M.RESISTOR 1/10W 10K	1	
R0518	NRSA02J-123X	M.RESISTOR 1/10W 12K	1	
R0519	NRSA02J-272X	M.RESISTOR 1/10W 2.7K	1	
R0520	NRSA02J-152X	M.RESISTOR 1/10W 1.5K	1	
⚠ R0521	NRSA02J-392X	M.RESISTOR 1/10W 3.9K	1	
R0522	NRSA02J-152X	M.RESISTOR 1/10W 1.5K	1	
⚠ R0523,24	NRSA02J-392X	M.RESISTOR 1/10W 3.9K	2	
R0525	NRSA02J-104X	M.RESISTOR 1/10W 100K	1	
R0530	NRSA02J-680X	M.RESISTOR 1/10W 68	1	
R0532	NRSA02J-103X	M.RESISTOR 1/10W 10K	1	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks

ELECTRICAL REPLACEMNT PARTS LIST(BT-YA701P)

Components identified with the mark ⚠ have the special characterisitics for safety.
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Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
■	FX-M027A	VIDEO P.C.BOARD	1	(RTL)
				(RTL)
■	FX-MA027A	VIDEO P.C.BOARD	1	(RTL)
C0101	QETN1EM-476Z	E.CAPACITOR 25V 47U	1	
C0102	QETN1HM-106Z	E.CAPACITOR 50V 10U	1	
C0104	QFV71HJ-104Z	P.CAPACITOR 50V 0.1U	1	
C0105	QENC1CM-336Z	E.CAPACITOR 16V 33U	1	
C0106,07	QFV71HJ-104Z	P.CAPACITOR 50V 0.1U	2	
C0108	QETN1EM-476Z	E.CAPACITOR 25V 47U	1	
C0109	QENC1CM-336Z	E.CAPACITOR 16V 33U	1	
C0113	QFV71HJ-104Z	P.CAPACITOR 50V 0.1U	1	
C0114	QENC1CM-336Z	E.CAPACITOR 16V 33U	1	
C0120	QETN1EM-476Z	E.CAPACITOR 25V 47U	1	
C0122	QFV71HJ-104Z	P.CAPACITOR 50V 0.1U	1	
C0124	QFV71HJ-104Z	P.CAPACITOR 50V 0.1U	1	
C0126	QFV71HJ-104Z	P.CAPACITOR 50V 0.1U	1	
C0128	QFLC1HJ-103Z	P.CAPACITOR 50V 0.01U	1	
C0129	QETN1EM-476Z	E.CAPACITOR 25V 47U	1	
C0132	QETN1HM-105Z	E.CAPACITOR 50V 1U	1	
C0135	QENC1HM-105Z	E.CAPACITOR 50V 1U	1	
C0138	QETN1HM-105Z	E.CAPACITOR 50V 1U	1	
C0141	QENC1HM-105Z	E.CAPACITOR 50V 1U	1	
C0142	QETN1EM-476Z	E.CAPACITOR 25V 47U	1	
C0143,44	QFV71HJ-104Z	E.CAPACITOR 50V 0.1U	2	
C0150	QETN1HM-106Z	E.CAPACITOR 50V 10U	1	
C0151	QFV71HJ-104Z	P.CAPACITOR 50V 0.1U	1	
C0152	QEHQ1EM-228	E.CAPACITOR 25V 2200U	1	
C0153	QETN1HM-106Z	E.CAPACITOR 50V 10U	1	
C0154	QFV71HJ-104Z	P.CAPACITOR 50V 0.1U	1	
C0155	QETN1CM-107Z	E.CAPACITOR 16V 100U	1	
C0156,57	QFV71HJ-224Z	P.CAPACITOR 50V 0.22U	2	
C0158	QETN1HM-106Z	E.CAPACITOR 50V 10U	1	
C0202	QFLC1HJ-103Z	P.CAPACITOR 50V 0.01U	1	
C0203	QFLC1HJ-102Z	P.CAPACITOR 50V 1000P	1	
C0204	QETN1HM-475Z	E.CAPACITOR 50V 4.7U	1	
C0205	QFLC1HJ-103Z	P.CAPACITOR 50V 0.01U	1	
C0207	QFLC1HJ-103Z	P.CAPACITOR 50V 0.01U	1	
C0208	QEHR0JM-477Z	E.CAPACITOR 6.3V 470U	1	
C0210	QFLC1HJ-102Z	P.CAPACITOR 50V 1000P	1	
C0211	QFLC1HJ-103Z	P.CAPACITOR 50V 0.01U	1	
C0212	QETN1EM-476Z	E.CAPACITOR 25V 47U	1	
C0213	QETN1HM-106Z	E.CAPACITOR 50V 10U	1	
C0214,15	QENC1CM-336Z	E.CAPACITOR 16V 33U	2	
C0216	QFLC1HJ-103Z	P.CAPACITOR 50V 0.01U	1	
C0217	QETN1HM-106Z	E.CAPACITOR 50V 10U	1	
C0218	QENC1CM-336Z	E.CAPACITOR 16V 33U	1	
C0219,20	QFV71HJ-104Z	P.CAPACITOR 50V 0.1U	2	
C0221	QFLC1HJ-103Z	P.CAPACITOR 50V 0.01U	1	
C0222	QETN1EM-476Z	E.CAPACITOR 25V 47U	1	
C0223	QFLC1HJ-103Z	P.CAPACITOR 50V 0.01U	1	
C0224	QFV71HJ-104Z	P.CAPACITOR 50V 0.1U	1	
C0225	QENC1CM-336Z	E.CAPACITOR 16V 33U	1	
C0301	QFLC1HJ-103Z	P.CAPACITOR 50V 0.01U	1	
C0304	QFLC1HJ-103Z	P.CAPACITOR 50V 0.01U	1	
C0306	QFLC1HJ-273Z	P.CAPACITOR 50V 0.027U	1	
C0307	QFLC1HJ-103Z	P.CAPACITOR 50V 0.01U	1	
C0308	QETN1HM-474Z	E.CAPACITOR 50V 0.47U	1	
C0309	QFV71HJ-104Z	P.CAPACITOR 50V 0.1U	1	
C0310	QETN1CM-107Z	E.CAPACITOR 16V 100U	1	
C0311,12	QFV71HJ-104Z	P.CAPACITOR 50V 0.1U	2	
C0313	QENC1EM-106Z	E.CAPACITOR 25V 10U	1	
C0314	QFLC1HJ-103Z	P.CAPACITOR 50V 0.01U	1	
C0315	QFV71HJ-104Z	P.CAPACITOR 50V 0.1U	1	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
C0327,28	QENC1EM-106Z	E.CAPACITOR 25V 10U	2	
⚠ D0101-08	1SS133	DIODE	8	
D0109,10	MTZJ12CTA	DIODE	2	
D0111	MTZJ5.1B	DIODE	1	
⚠ D0112,13	1SS133	DIODE	2	
⚠ D0201-03	1SS133	DIODE	3	
DL0201	CE42099-003	DELAY	1	
DL0301	CE41489-001	DELAY	1	
IC0101,02	NJM2234D	IC	2	
IC0103	BA12T	IC	1	
IC0104	BA05T	IC	1	
IC0201	NJM2240D	IC	1	
IC0202	SBX1745-01	IC	1	
IC0203	NJM2234D	IC	1	
IC0204	TC4053BP	IC	1	
IC0301	AN5625N	IC	1	
J0001,02	CEMB021-002	CONNECTOR	2	
J0003	QMD2B04-001	CONNECTOR	1	
J0004	CEMB021-002	CONNECTOR	1	
J0005	CEMN036-005	PIN JACK	1	
L0202	QQL244K-100Z	COIL 10UH	1	
L0203-05	QQL244K-4R7Z	COIL 4.7UH	3	
L0301	QQL244K-8R2Z	COIL 8.2UH	1	
L0302,03	QQL244K-820Z	COIL 82UH	2	
Q0101-03	2SC3311A	TRANSISTOR	3	
Q0104	2SA1309A-R	TRANSISTOR	1	
Q0105,06	2SC3311A	TRANSISTOR	2	
Q0110,11	2SC3311A	TRANSISTOR	2	
Q0112	2SA1309A-R	TRANSISTOR	1	
Q0113-15	2SC3311A	TRANSISTOR	3	
Q0116	2SA1309A-R	TRANSISTOR	1	
Q0117	2SC3311A	TRANSISTOR	1	
Q0120,21	2SC3311A	TRANSISTOR	2	
Q0123,24	2SC3311A	TRANSISTOR	2	
Q0203	2SC3311A	TRANSISTOR	1	
Q0205	DTC124ES	TRANSISTOR	1	
Q0206-08	2SC3311A	TRANSISTOR	3	
Q0209	DTC124ES	TRANSISTOR	1	
Q0301	DTC124ES	TRANSISTOR	1	
Q0302-05	2SC3311A	TRANSISTOR	4	
Q0307-09	DTC124ES	TRANSISTOR	3	
R0101,02	QRE141J-750Y	C.RESISOR 1/4W 75	2	
R0103	QRE141J-101Y	C.RESISOR 1/4W 100	1	
R0104,05	QRE141J-393Y	C.RESISOR 1/4W 39	2	
R0106	QRE141J-562Y	C.RESISOR 1/4W 5.6	1	
R0107	QRE141J-101Y	C.RESISOR 1/4W 100	1	
⚠ R0108	QRE141J-103Y	C.RESISOR 1/4W 10K	1	
R0109	QRE141J-101Y	C.RESISOR 1/4W 100	1	
R0110,11	QRE141J-393Y	C.RESISOR 1/4W 39K	2	
R0112	QRE141J-562Y	C.RESISOR 1/4W 5.6K	1	
R0113	QRE141J-101Y	C.RESISOR 1/4W 100	1	
R0114	QRE141J-393Y	C.RESISOR 1/4W 39K	1	
R0115	QRE141J-153Y	C.RESISOR 1/4W 15K	1	
R0116	QRE141J-391Y	C.RESISOR 1/4W 390	1	
R0117	QRE141J-221Y	C.RESISOR 1/4W 220	1	
R0118	QRE141J-101Y	C.RESISOR 1/4W 100	1	
R0119	QRE141J-271Y	C.RESISOR 1/4W 270	1	
R0120	QRE141J-391Y	C.RESISOR 1/4W 390	1	
R0121	QRE141J-182Y	C.RESISOR 1/4W 1.8K	1	
R0122	QRE141J-101Y	C.RESISOR 1/4W 100	1	
R0123	QRE141J-152Y	C.RESISOR 1/4W 1.5K	1	
R0124	QRE141J-101Y	C.RESISOR 1/4W 100	1	
⚠ R0125	QRE141J-681Y	C.RESISOR 1/4W 680	1	
R0130,31	QRE141J-750Y	C.RESISOR 1/4W 75	2	
R0132	QRE141J-101Y	C.RESISOR 1/4W 100	1	
R0133	QRE141J-393Y	C.RESISOR 1/4W 39	1	
R0134	QRE141J-183Y	C.RESISOR 1/4W 18	1	
R0135	QRE141J-562Y	C.RESISOR 1/4W 5.6	1	

Components identified with the mark ⚠ have the special characterisitics for safety.
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Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
R0136	QRE141J-101Y	C.RESISOR 1/4W 100	1	
R0137	QRE141J-391Y	C.RESISOR 1/4W 390	1	
R0138	QRE141J-221Y	C.RESISOR 1/4W 220	1	
R0139	QRE141J-101Y	C.RESISOR 1/4W 100	1	
R0140	QRE141J-271Y	C.RESISOR 1/4W 270	1	
R0141	QRE141J-391Y	C.RESISOR 1/4W 390	1	
R0142	QRE141J-182Y	C.RESISOR 1/4W 1.8K	1	
R0143	QRE141J-101Y	C.RESISOR 1/4W 100	1	
R0144	QRE141J-393Y	C.RESISOR 1/4W 39K	1	
R0145	QRE141J-183Y	C.RESISOR 1/4W 18K	1	
R0146	QRE141J-562Y	C.RESISOR 1/4W 5.6K	1	
R0147	QRE141J-101Y	C.RESISOR 1/4W 100	1	
R0148	QRE141J-391Y	C.RESISOR 1/4W 390	1	
R0149	QRE141J-221Y	C.RESISOR 1/4W 220	1	
R0151	QRE141J-271Y	C.RESISOR 1/4W 270	1	
R0152	QRE141J-391Y	C.RESISOR 1/4W 390	1	
R0153	QRE141J-182Y	C.RESISOR 1/4W 1.8K	1	
⚠ R0154	QRE141J-223Y	C.RESISOR 1/4W 22K	1	
R0155	QRE141J-273Y	C.RESISOR 1/4W 27K	1	
⚠ R0161	QRE141J-102Y	C.RESISOR 1/4W 1K	1	
R0162	QRE141J-563Y	C.RESISOR 1/4W 56K	1	
R0163	QRE141J-683Y	C.RESISOR 1/4W 68K	1	
R0164	QRE141J-682Y	C.RESISOR 1/4W 6.8K	1	
⚠ R0166	QRE141J-102Y	C.RESISOR 1/4W 1K	1	
R0167	QRE141J-563Y	C.RESISOR 1/4W 56K	1	
R0168	QRE141J-683Y	C.RESISOR 1/4W 68K	1	
R0169	QRE141J-682Y	C.RESISOR 1/4W 6.8K	1	
⚠ R0170	QRE141J-102Y	C.RESISOR 1/4W 1K	1	
R0171	QRE141J-0R0Y	C.RESISOR 1/4W 0	1	
R0173	QRE141J-101Y	C.RESISOR 1/4W 100	1	
R0174,75	QRE141J-393Y	C.RESISOR 1/4W 39	2	
R0176	QRE141J-562Y	C.RESISOR 1/4W 5.6K	1	
R0177	QRE141J-101Y	C.RESISOR 1/4W 100	1	
R0178,79	QRE141J-151Y	C.RESISOR 1/4W 150	2	
R0210	QRE141J-331Y	C.RESISOR 1/4W 330	1	
R0211	QRE141J-101Y	C.RESISOR 1/4W 100	1	
R0212	QRE141J-392Y	C.RESISOR 1/4W 3.9K	1	
R0214	QRE141J-271Y	C.RESISOR 1/4W 270	1	
R0216	QRE141J-273Y	C.RESISOR 1/4W 27K	1	
⚠ R0220	QRE141J-103Y	C.RESISOR 1/4W 10K	1	
R0221	QRE141J-393Y	C.RESISOR 1/4W 39K	1	
⚠ R0222	QRE141J-223Y	C.RESISOR 1/4W 22K	1	
R0224,25	QRE141J-821Y	C.RESISOR 1/4W 820	2	
⚠ R0226	QRE141J-102Y	C.RESISOR 1/4W 1K	1	
R0228	QRE141J-0R0Y	C.RESISOR 1/4W 0	1	
⚠ R0229,30	QRE141J-102Y	C.RESISOR 1/4W 1K	2	
R0231	QRE141J-391Y	C.RESISOR 1/4W 390	1	
R0232,33	QRE141J-562Y	C.RESISOR 1/4W 5.6K	2	
⚠ R0234	QRE141J-272Y	C.RESISOR 1/4W 2.7K	1	
⚠ R0235,36	QRE141J-103Y	C.RESISOR 1/4W 10K	2	
R0301,02	QRE141J-391Y	C.RESISOR 1/4W 390	2	
R0303	QRE141J-471Y	C.RESISOR 1/4W 470	1	
R0304	QRE141J-101Y	C.RESISOR 1/4W 100	1	
R0305	QRE141J-472Y	C.RESISOR 1/4W 4.7K	1	
⚠ R0306	QRE141J-272Y	C.RESISOR 1/4W 2.7K	1	
⚠ R0307	QRE141J-224Y	C.RESISOR 1/4W 220	1	
⚠ R0309	QRE141J-103Y	C.RESISOR 1/4W 10K	1	
⚠ R0310	QRE141J-223Y	C.RESISOR 1/4W 22K	1	
R0311	QRE141J-684Y	C.RESISOR 1/4W 680K	1	
⚠ R0312	QRE141J-103Y	C.RESISOR 1/4W 10K	1	
R0313	QRE141J-101Y	C.RESISOR 1/4W 100	1	
R0314	QRE141J-222Y	C.RESISOR 1/4W 2.2K	1	
⚠ R0315	QRE141J-681Y	C.RESISOR 1/4W 680	1	
R0316	QRE141J-101Y	C.RESISOR 1/4W 100	1	
R0319	QRE141J-682Y	C.RESISOR 1/4W 6.8K	1	
⚠ R0320	QRE141J-332Y	C.RESISOR 1/4W 3.3K	1	
⚠ R0321,22	QRE141J-103Y	C.RESISOR 1/4W 10K	2	
⚠ R0330	QRE141J-272Y	C.RESISOR 1/4W 2.7K	1	
R0331	QRE141J-561Y	C.RESISOR 1/4W 560K	1	
⚠ R0332,33	QRE141J-102Y	C.RESISOR 1/4W 1K	2	
R0334	QRE141J-152Y	C.RESISOR 1/4W 1.5K	1	
⚠ R0335,36	QRE141J-332Y	C.RESISOR 1/4W 3.3K	2	
⚠ R0337	QRE141J-272Y	C.RESISOR 1/4W 2.7K	1	
R0338	QRE141J-821Y	C.RESISOR 1/4W 820	1	
⚠ R0339,40	QRE141J-102Y	C.RESISOR 1/4W 1K	2	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
R0341	QRE141J-152Y	C.RESISOR 1/4W 1.5K	1	
⚠ R0342,43	QRE141J-332Y	C.RESISOR 1/4W 3.3K	2	
R0344-47	QRE141J-683Y	C.RESISOR 1/4W 68K	4	
S0301	QSS1A22-C04	SWITCH	1	
T0301	QQR1018-001	IF	1	
TC0303,04	QAT7003-450	TRIMMER 45P	2	
VR0101,02	QVP0053-201Z	V.RESISTOR 200	2	
VR0301	QVP0053-202Z	V.RESISTOR 2K	1	
VR0302,03	QVP0053-103Z	V.RESISTOR 10K	2	
VR0304	QVP0053-201Z	V.RESISTOR 200	1	
VR0305	QVP0053-103Z	V.RESISTOR 10K	1	
X0301	CE40668-001Z	CRYSTAL OSCILLATOR	1	
X0302	CE40749-001Z	CRYSTAL OSCILLATOR	1	

ELECTRICAL REPLACEMNT PARTS LIST(BT-YA702P)

Components identified with the mark ⚠ have the special characterisitics for safety.
When replacing any of these components, use onlly the same type.

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
■	FX-M028A	COMPO P.C.BOARD	1	(RTL)
■	FX-M028A	COMPO P.C.BOARD	1	(RTL)
C0101-03	QETN1EM-476Z	E.CAPACITOR 25V 47U	1	
C0104-05	QETN1HM-106Z	E.CAPACITOR 50V 10U	1	
C0107	QETN1CM-107Z	E.CAPACITOR 16V 100U	1	
C0109	QETN1CM-107Z	E.CAPACITOR 16V 100U	1	
C0111	QETN1CM-107Z	E.CAPACITOR 16V 100U	1	
C0114	QFV71HJ-104Z	P.CAPACITOR 50V 0.1U	1	
C0115	QETN1CM-107Z	E.CAPACITOR 16V 100U	1	
C0116-19	QFV71HJ-104Z	P.CAPACITOR 50V 0.1U	1	
C0120	QETN1EM-476Z	E.CAPACITOR 25V 47U	1	
C0121	QFV71HJ-104Z	P.CAPACITOR 50V 0.1U	1	
C0122	QETN1CM-107Z	E.CAPACITOR 16V 100U	1	
C0123	QFV71HJ-224Z	P.CAPACITOR 50V 0.22U	1	
C0203	QETN1HM-105Z	E.CAPACITOR 50V 1U	1	
C0206	QFV71HJ-104Z	P.CAPACITOR 50V 0.1U	1	
C0207	QETN1CM-107Z	E.CAPACITOR 16V 100U	1	
⚠ D0101-10	1SS133	DIODE	10	
D0201	MTZJ12CTA	DIODE	1	
IC0101	BA12T	IC	1	
J0001-05	CEMB021-002	CONNECTOR	1	
J0006	CEMN079-002	PIN JACK	1	
Q0101-03	2SC3311A	TRANSISTOR	1	
Q0104	2SA1309A-R	TRANSISTOR	1	
Q0105-07	2SC3311A	TRANSISTOR	1	
Q0108	2SA1309A-R	TRANSISTOR	1	
Q0109-11	2SC3311A	TRANSISTOR	1	
Q0112	2SA1309A-R	TRANSISTOR	1	
Q0113-14	2SC3311A	TRANSISTOR	1	
Q0201	2SC3311A	TRANSISTOR	1	
R0101	QRA14CF-75R0	M.RESISTOR 1/4W 75	1	
R0104	QRE141J-101Y	C.RESISTOR 1/4W 100	1	
R0105	QRE141J-563Y	C.RESISTOR 1/4W 56K	1	
R0106	QRE141J-333Y	C.RESISTOR 1/4W 33K	1	
R0107	QRE141J-152Y	C.RESISTOR 1/4W 1.5K	1	
R0109	QRE141J-471Y	C.RESISTOR 1/4W 470	1	
⚠ R0111	QRE141J-473Y	C.RESISTOR 1/4W 47K	1	
R0112	QRE141J-471Y	C.RESISTOR 1/4W 470	1	
R0113	QRE141J-391Y	C.RESISTOR 1/4W 390	1	
R0114	QRE141J-101Y	C.RESISTOR 1/4W 100	1	
R0115	QRA14CF-75R0	M.RESISTOR 1/4W 75	1	
R0118	QRE141J-101Y	C.RESISTOR 1/4W 100	1	
R0119	QRE141J-563Y	C.RESISTOR 1/4W 56K	1	
R0120	QRE141J-333Y	C.RESISTOR 1/4W 33K	1	
R0121	QRE141J-152Y	C.RESISTOR 1/4W 1.5K	1	
R0123	QRE141J-471Y	C.RESISTOR 1/4W 470	1	
⚠ R0125	QRE141J-473Y	C.RESISTOR 1/4W 47K	1	
R0126	QRE141J-471Y	C.RESISTOR 1/4W 470	1	
R0127	QRE141J-391Y	C.RESISTOR 1/4W 390	1	
R0128	QRE141J-101Y	C.RESISTOR 1/4W 100	1	
R0129	QRA14CF-75R0	M.RESISTOR 1/4W 75	1	
R0132	QRE141J-101Y	C.RESISTOR 1/4W 100	1	
R0133	QRE141J-563Y	C.RESISTOR 1/4W 56K	1	
R0134	QRE141J-333Y	C.RESISTOR 1/4W 33K	1	
R0135	QRE141J-152Y	C.RESISTOR 1/4W 1.5K	1	
R0137	QRE141J-471Y	C.RESISTOR 1/4W 470	1	
⚠ R0139	QRE141J-473Y	C.RESISTOR 1/4W 47K	1	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
R0140	QRE141J-471Y	C.RESISTOR 1/4W 470	1	
R0141	QRE141J-391Y	C.RESISTOR 1/4W 390	1	
R0142	QRE141J-101Y	C.RESISTOR 1/4W 100	1	
R0143-44	QRE141J-151Y	C.RESISTOR 1/4W 150	1	
R0146	QRE141J-101Y	C.RESISTOR 1/4W 100	1	
R0147-48	QRE141J-333Y	C.RESISTOR 1/4W 33K	1	
⚠ R0149	QRE141J-272Y	C.RESISTOR 1/4W 2.7K	1	
R0150	QRE141J-0R0Y	C.RESISTOR 1/4W 0	1	
R0152-53	QRE141J-151Y	C.RESISTOR 1/4W 150	1	
R0155	QRE141J-101Y	C.RESISTOR 1/4W 100	1	
R0156-57	QRE141J-333Y	C.RESISTOR 1/4W 33K	1	
⚠ R0158	QRE141J-272Y	C.RESISTOR 1/4W 2.7K	1	
R0159	QRE141J-0R0Y	C.RESISTOR 1/4W 0	1	
R0161-63	QRE141J-471Y	C.RESISTOR 1/4W 470	1	
R0164-66	QRE141J-563Y	C.RESISTOR 1/4W 56K	1	
⚠ R0202	QRE141J-102Y	C.RESISTOR 1/4W 1K	1	
R0203	QRE141J-563Y	C.RESISTOR 1/4W 56K	1	
R0204	QRE141J-683Y	C.RESISTOR 1/4W 68K	1	
⚠ R0205	QRE141J-272Y	C.RESISTOR 1/4W 2.7K	1	
VR0101-03	QVP0053-501Z	V.RESISTOR 500	1	

Panasonic

Printed in Japan
FCD0111BAOK89P, E414P, E415P

SPECIFIC SERVICE INSTRUCTIONS

DISASSEMBLY PROCEDURE

■ CAUTION

Some parts are active even after the main power switch is set to OFF.
Be sure to unplug the power cord from the power outlet before proceeding with disassembly or assembly of the unit.

■ REMOVING THE SLOT PANEL, TOP COVER AND REAR PANEL

1. Unplug the power cord, remove the six screws ① and remove the Slot Panel.
2. Remove the fourteen screws ② and then the two screws ③.
3. Open up the lower part of the Top Cover slightly. Then pull the Top Cover toward the rear and lift to remove it.
4. Also remove the Rear Panel.

■ REMOVING THE BOTTOM COVER

- Remove the Slot Panel, Top Cover and Rear Panel before proceeding to the following.

1. Place the unit so that the side with the Slot Chassis comes at the bottom.
2. Remove the six screws ④ and pull the bottom cover toward the rear to remove it.

■ REMOVING THE SIGNAL PW BOARD, MOTHER PW BOARD AND REMOTE PW BOARD

- Remove the Slot Panel, Top Cover and Rear Panel before proceeding to the following.

1. Disconnect the wire clamps and connectors as required.
2. Remove the four screws ⑤ and unplug the Signal PWB from the connector on the Mother PWB.
3. Remove the two screws ⑥ and then remove the joint bracket.
4. Remove the two screws ⑦ and then remove the Slot Chassis by lifting it while pushing the claw Ⓒ on the Chassis Base.
5. Remove the nine screws ⑧ and remove the Mother PWB.
6. Remove the screw ⑨, the two screwnuts ⑩ and the two screwnuts ⑪, then remove the Remote PWB.

■ REMOVING THE CHASSIS BASE AND SPEAKER

- Remove the Slot Panel, Top Cover, Rear Panel and Slot Chassis before proceeding to the following.

1. Disconnect the wire clamps and connectors as required.
2. Remove the two screws ⑫ and pull the chassis base toward the front to remove it.
3. While disengaging the claw Ⓓ on the chassis base that is engaged with the rear of the speaker, lift the speaker to remove it (see Fig. 2).

■ REMOVING THE SIDE BRACKETS, CRT AND TALLY PW BOARD

- Remove the Slot Panel, Top Cover, Rear Panel, Bottom Cover, Slot Chassis and Chassis Base before proceeding to the following.

1. Remove the four screws ⑬ and remove the Side Brackets.
2. Also remove the CRT.
3. Remove the two screws ⑭ and remove the Tally PWB.

■ REMOVING THE FRONT CONTROL PW BOARD AND FRONT VR PW BOARD

1. Remove the five screws ⑮ and remove the Control Base.
2. Disconnect the connectors as required.
3. Remove the three screws ⑯ and remove the Front Control PWB.
4. While slightly lifting the two claws Ⓔ on the Control Base, remove the Front VR PWB.

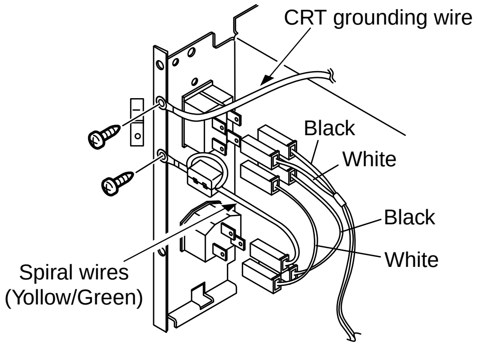
■ DIAGNOSING THE MAIN PW BOARD

1. Remove the Slot Panel, Top Cover and Rear Panel.
2. Place the unit so that the side with the Slot Chassis comes at the bottom, and remove the Bottom Cover.
3. Now the diagnosis of the Main PWB is possible.

*** The unit is unstable when it is placed on its side so please be careful that it does not topple over during work.**
*** Before turning the power on, ensure that the connectors including the CRT grounding are connected properly.**

CAUTION

Before turning the power on, ensure that the spiral wires (Yellow/Green) and the CRT grounding wires are connected properly.



View from the rear of the AC inlet

■ NOTE CONCERNING WIRE CLAMPING

- Be sure to reconnect the wire clamps that have been disconnected during the above work.

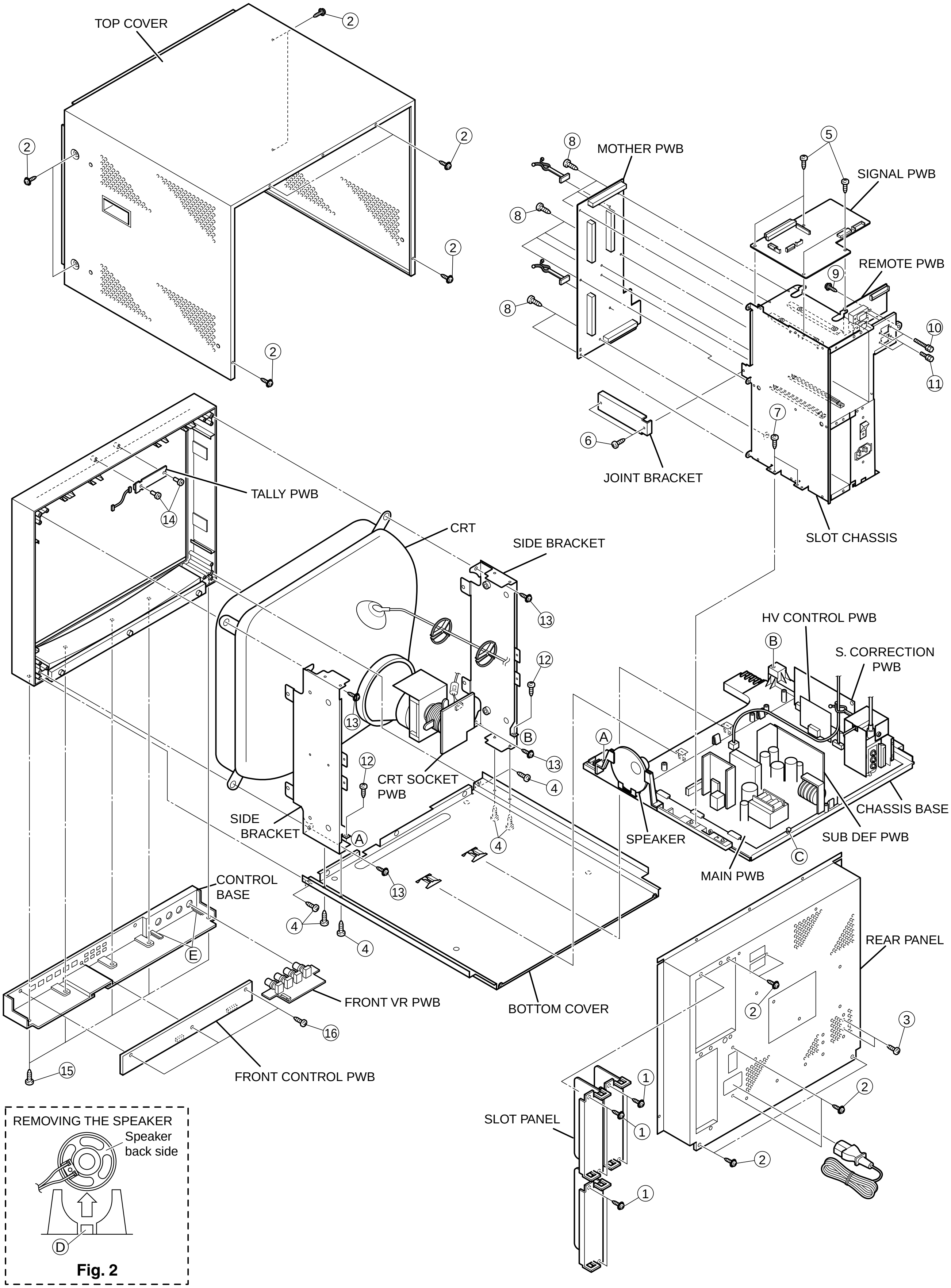

TOP COVER
②
MOTHER PWB
⑧
⑤
SIGNAL PWB
REMOTE PWB
⑨
⑩
⑪
⑥
⑦
JOINT BRACKET
SLOT CHASSIS
TALLY PWB
⑭
CRT
SIDE BRACKET
⑬
⑫
HV CONTROL PWB
S. CORRECTION PWB
Ⓑ
Ⓐ
CRT SOCKET PWB
SIDE BRACKET
④
SPEAKER
CHASSIS BASE
SUB DEF PWB
Ⓒ
MAIN PWB
CONTROL BASE
Ⓔ
REAR PANEL
FRONT VR PWB
BOTTOM COVER
③
⑯
⑮
FRONT CONTROL PWB
①
SLOT PANEL
REMOVING THE SPEAKER
Speaker back side
Ⓓ

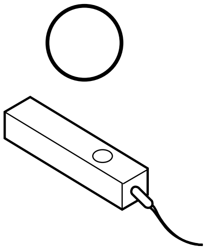
Fig. 2

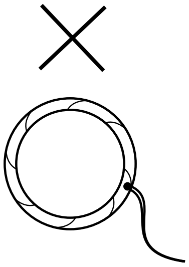
Fig. 1

DEMAGNETIZATION PROCEDURE

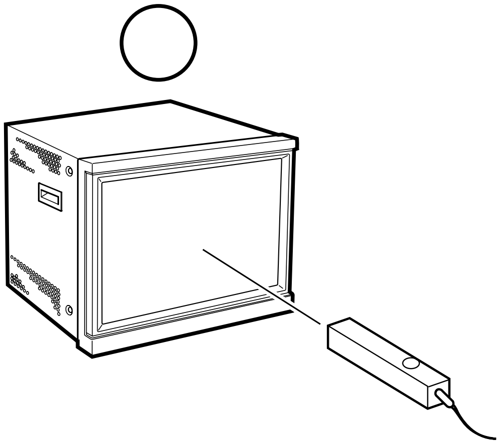
■ CAUTION

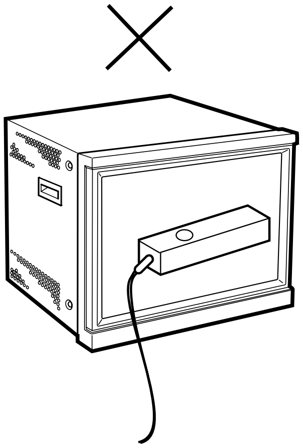
1. Use a rod-type demagnetization coil.
   * Never use a ring-shaped demagnetization coil.



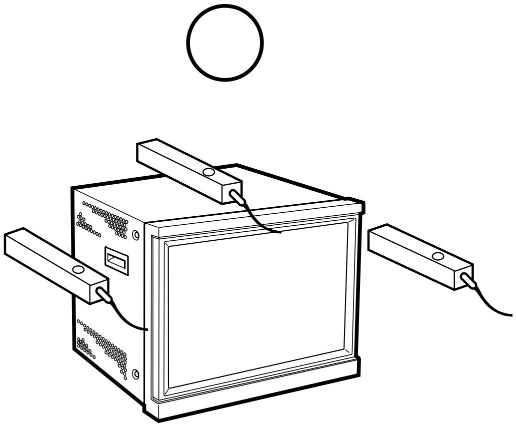


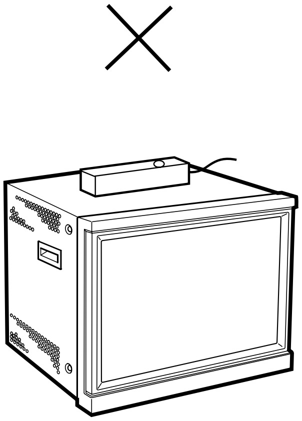
2. Keep the demagnetization coil at a distance of more than 1.5 cm from the CRT screen and the main unit during use.
3. When demagnetizing the CRT screen, hold the demagnetization coil perpendicularly to the CRT screen.





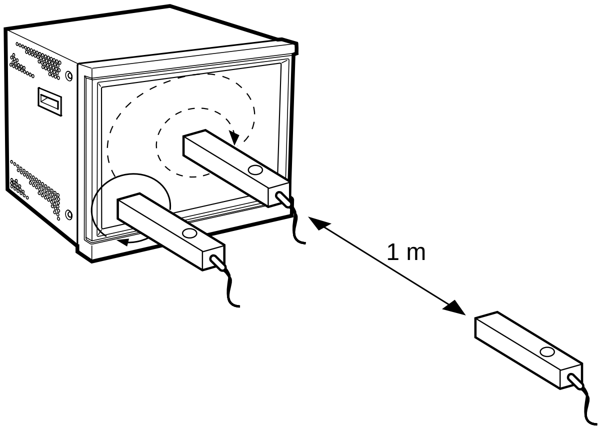
4. When demagnetizing the outer cabinet of the unit, use the demagnetization coil in the orientation as shown below.





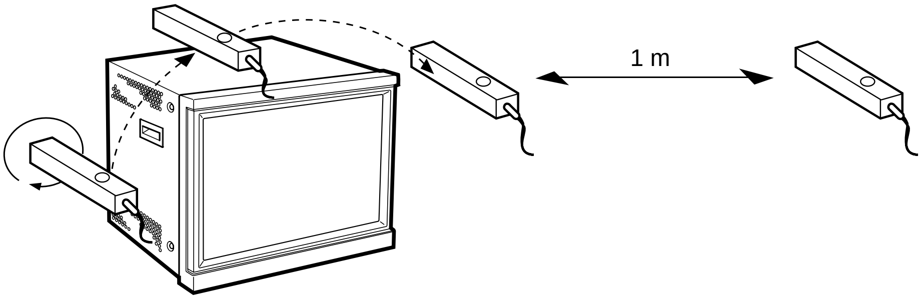
■ DEMAGNETIZING THE CRT SCREEN

1. While holding the power button of the demagnetization coil, move it to approach the CRT screen area that has color irregularities. (Keep the demagnetization coil at a distance of more than 1.5 cm from the screen.)
2. From the area with the color irregularities, move the demagnetization coil as if drawing a spiral toward the center of the CRT screen.
3. Move the demagnetization coil slowly away from the center of the CRT screen.
4. When the demagnetization coil comes to about 1 meter from the CRT screen, release the demagnetization coil power button.
5. If the color irregularities are still observed, repeat the above steps once more.



■ DEMAGNETIZING THE OUTER CABINET OF THE UNIT

1. While holding the power button of the demagnetization coil, move it to approach the outer cabinet of the unit. (Keep the demagnetization coil at a distance of more than 1.5 cm from the cabinet.)
2. Keep the demagnetization coil in the same orientation, and move it around the cabinet as if drawing a circle around the side and top panels of the unit.
3. Move the demagnetization coil slowly away from the outer cabinet of the unit.
4. When the demagnetization coil comes to about 1 meter from the unit, release the power button of the demagnetization coil.



REPLACEMENT OF CHIP COMPONENT

■ CAUTIONS

1. Avoid heating for more than 3 seconds.
2. Do not rub the electrodes and the resist parts of the pattern.
3. When removing a chip part, melt the solder adequately.
4. Do not reuse a chip part after removing it.

■ SOLDERING IRON

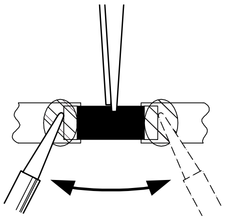
1. Use a high insulation soldering iron with a thin pointed end of it.
2. A 30w soldering iron is recommended for easily removing parts.

■ REPLACEMENT STEPS

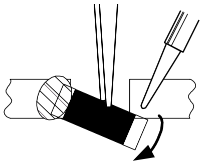
1. How to remove Chip parts

◆ Resistors, capacitors, etc.

(1) As shown in the figure, push the part with tweezers and alternately melt the solder at each end.

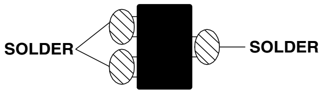


(2) Shift with tweezers and remove the chip part.

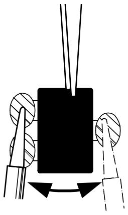


◆ Transistors, diodes, variable resistors, etc.

(1) Apply extra solder to each lead.



(2) As shown in the figure, push the part with tweezers and alternately melt the solder at each lead. Shift and remove the chip part.

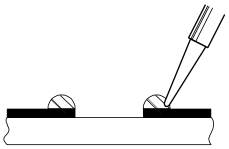


Note : After removing the part, remove remaining solder from the pattern.

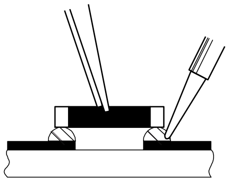
2. How to install Chip parts

◆ Resistors, capacitors, etc.

(1) Apply solder to the pattern as indicated in the figure.

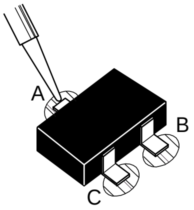


(2) Grasp the chip part with tweezers and place it on the solder. Then heat and melt the solder at both ends of the chip part.

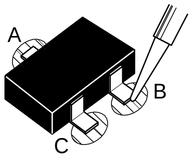


◆ Transistors, diodes, variable resistors, etc.

(1) Apply solder to the pattern as indicated in the figure.
(2) Grasp the chip part with tweezers and place it on the solder.
(3) First solder lead **A** as indicated in the figure.



(4) Then solder leads **B** and **C**.

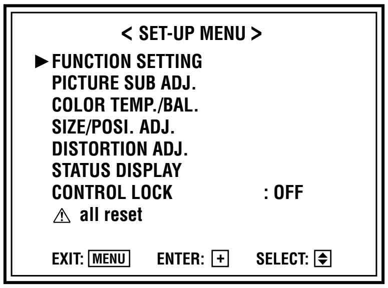


REPLACEMENT OF THE MEMORY IC

The unit incorporates a nonvolatile Memory IC, which stores data on the video and deflection systems, etc.
When it is replaced with an IC without the data stored in it, the set may malfunction or the video may become abnormal when the unit is turned on.
When replacing the Memory IC, be sure to use an IC in which the data (initial values) has already been written. (Ref No. : 24C16V1700CG)

■ REPLACING THE MEMORY IC

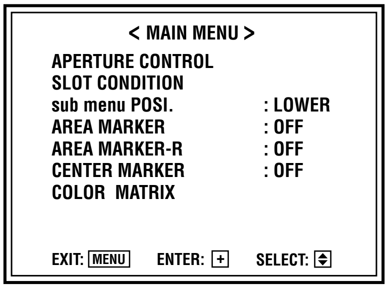
1. Turn the unit off and unplug the power cord from the power outlet.
2. Replace the Memory IC with a new Memory IC storing the initial value data.
3. Plug the power cord into the power outlet and turn the unit on.
4. Check the SET-UP MENU and set its items as required.
   1) While holding down the ▼ key, press the **VOL -** (◄) key.
   2) The SET-UP MENU appears (Fig. 1).
   3) Check the items in the SET-UP MENU by comparing them with the data in the table on page 10.
      If any item is set differently, set it as required.



< SET-UP MENU >
►FUNCTION SETTING
PICTURE SUB ADJ.
COLOR TEMP./BAL.
SIZE/POSI. ADJ.
DISTORTION ADJ.
STATUS DISPLAY
CONTROL LOCK : OFF
⚠ all reset
EXIT: MENU ENTER: + SELECT: ⇕

Fig. 1

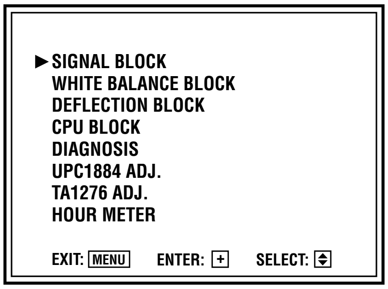
5. Check the other menus and set their items as required.
   Press the **MENU** key to display the MAIN MENU (Fig. 2). Check the items in the MAIN MENU by comparing them with the data in the table on page 11. If any item is set differently, set it as required.



< MAIN MENU >
APERTURE CONTROL
SLOT CONDITION
sub menu POSI. : LOWER
AREA MARKER : OFF
AREA MARKER-R : OFF
CENTER MARKER : OFF
COLOR MATRIX
EXIT: MENU ENTER: + SELECT: ⇕

Fig. 2

6. Adjust the items that can be adjusted on the front panel. (Some items cannot be adjusted unless the required signal is input.)
7. Check that the initial values of the items in the service menu are correct (Fig. 3).
   For the setting method, see the corresponding pages for "**Adjustments**" in this manual.



►SIGNAL BLOCK
WHITE BALANCE BLOCK
DEFLECTION BLOCK
CPU BLOCK
DIAGNOSIS
UPC1884 ADJ.
TA1276 ADJ.
HOUR METER
EXIT: MENU ENTER: + SELECT: ⇕

Fig. 3

FACTORY SETTINGS

■ INITIAL VALUES OF THE SET-UP MENU ITEMS

Item	Data/Variable range	Initial setting value	Remarks
FUNCTION SETTING			
COLOR SYSTEM	AUTO/NTSC/PAL	AUTO	Apply the NTSC/PAL color bar signal
RUSH DELAY TIME	STD. /SLOW	STD.	
PICTURE SUB ADJ.			
CONTRAST	-20 — +20	00	
BRIGHT	-20 — +20	00	
CHROMA	-20 — +20	00	
PHASE	-20 — +20	00	
COMPO. LEVEL	SMPTE/B00/B75	SMPTE	Apply the component signal
NTSC SETUP	00 / 7.5	7.5	
COLOR TEMP. / BAL.			
COLOR TEMP.	LOW / HIGH	LOW	
BLUE DRIVE	MIN — MAX (127 steps)	000	
RED DRIVE	MIN — MAX (127 steps)	000	
GREEN CUTOFF	MIN — MAX (205 steps)	000	
BLUE CUTOFF	MIN — MAX (205 steps)	MIN	
RED CUTOFF	MIN — MAX (205 steps)	000	
SIZE / POSI. ADJ.			
H.SIZE	-20 — +20	00	
H.POSITION	-20 — +20	00	
V.SIZE	-20 — +20	00	
V.POSITION	-20 — +20	00	
DISTORTION ADJ.			
PINCUSHION	-20 — +20	00	
PIN.BALANCE	-20 — +20	00	
PARALLELOGRAM	-20 — +20	00	
TRAPEZOID	-20 — +20	00	
STATUS DISPLAY			
STATUS DISPLAY	ON / OFF	ON	
1080/1035	1035/1080	1080	Apply the component signal
CONTROL LOCK	ON / OFF	OFF	

■ INITIAL VALUES OF MAIN MENU

Item	Data/Variable range	Initial setting value
APERTURE CONTROL		
LEVEL	00 — 10	00
CONTROL FREQ.	→ HIGH → LOW → OFF →	HIGH
SLOT CONDITION INPUT A — F	Type of boards installed in the rear panel slots. SLOT1 : INPUT A, B SLOT2 : INPUT C, D SLOT3 : INPUT E, F	
sub menu POSI.	LOWER / UPPER	LOWER
AREA MARKER	→ 16/9 → 4/3 → 13/9 → 14/9 → OFF ← MODE2 ← MODE1 ←	OFF
AREA MARKER-R	→ 16/9 → 4/3 → 13/9 → 14/9 → OFF ← MODE2 ← MODE1 ←	OFF
CENTER MARKER	ON / OFF	OFF
COLOR MATRIX	SELECT : MANUAL / ITU601 ↑ [Example when MANUAL is set]	MANUAL
	R-Y PHASE : 90/92/94/112	90
	R/B GAIN : 0.56/0.68/0.79/0.86	0.86
	G-Y PHASE : 236/240/244/253	244
	G/B GAIN : 0.30/0.34/0.40/0.45	0.30

■ INITIAL VALUES OF FRONT PANEL CONTROL

Item	Data/Variable range	Initial setting value
POWER	ON/OFF	OFF
INPUT SELECT	INPUT A — F	INPUT A
COLOR OFF AREA MARKER PULSE CROSS ASPECT UNDER SCAN SCREENS CHECK DEGAUSS	ON/OFF	OFF
VOLUME	00 — 50	10
CONTRAST BRIGHT CHROMA PHASE	POTENTIOMETER	Center click position

ELECTRICAL REPLACEMNT PARTS LIST (BT-H1700P)

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
■ E1	FX-1149A	SIGNAL P.C.BOARD	1	(RTL)
■ E2	FX-2072A	MAIN P.C.BOARD	1	(RTL)
■ E3	FX-2112A	S.CORRECTION P.C.BOARD	1	(RTL)
■ E4	FX-3065A	CRT P.C.BOARD	1	(RTL)
■ E5	FX-4073A	FRONT CONTROL P.C.BOARD	1	(RTL)
■ E6	FX-5023A	FRONT VR P.C.BOARD	1	(RTL)
■ E7	FX-6081A	MOTHER P.C.BOARD	1	(RTL)
■ E8	FX-7027A	TALLY P.C.BOARD	1	(RTL)
■ E9	FX-8027A	REMOTE P.C.BOARD	1	(RTL)
■ E10	FX-M025A	SUB DEF P.C.BOARD	1	(RTL)
■ E11	FX-M026A	HV CONTROL P.C.BOARD	1	(RTL)
■ E1	FX-1149A	SIGNAL P.C.BOARD	1	(RTL)
C1104	NEN51HM-105X	E.CAPACITOR 50V 1U	1	
C1105	NEN51CM-475X	E.CAPACITOR 16V 4.7U	1	
C1106	NEH71EM-475X	E.CAPACITOR 25V 4.7U	1	
C1107	NEN51CM-475X	E.CAPACITOR 16V 4.7U	1	
C1108	NEH71EM-475X	E.CAPACITOR 25V 4.7U	1	
C1109	NCB21HK-472X	C.CAPACITOR 50V 4700P	1	
C1110	NCB21EK-683X	C.CAPACITOR 25V 0.068U	1	
C1111	NEH71CM-106X	E.CAPACITOR 16V 10U	1	
C1112	NCB21HK-103X	C.CAPACITOR 50V 0.01U	1	
C1113	NDC21HJ-121X	C.CAPACITOR 50V 120P	1	
C1114	NDC21HJ-820X	C.CAPACITOR 50V 82P	1	
C1115	NEH70JM-107X	E.CAPACITOR 6.3V 100U	1	
C1116	NCF21HZ-103X	C.CAPACITOR 50V 0.01U	1	
C1117	NEH71CM-106X	E.CAPACITOR 16V 10U	1	
C1118	NCF21HZ-103X	C.CAPACITOR 50V 0.01U	1	
C1119	NDC21HJ-101X	C.CAPACITOR 50V 100P	1	
C1121	NEH71CM-476X	E.CAPACITOR 16V 47U	1	
C1122	NDC21HJ-330X	C.CAPACITOR 50V 33P	1	
C1123	NCB21HK-102X	C.CAPACITOR 50V 1000P	1	
C1131,32	NCF21HZ-104X	C.CAPACITOR 50V 0.1U	2	
C1133	NDC21HJ-100X	C.CAPACITOR 50V 10P	1	
C1134	NDC21HJ-271X	C.CAPACITOR 50V 270P	1	
C1141	NEH70JM-107X	E.CAPACITOR 6.3V 100U	1	
C1142-49	NCF21HZ-104X	C.CAPACITOR 50V 0.1U	8	
C1150	NCB21HK-103X	C.CAPACITOR 50V 0.01U	1	
C1151	NCB21HK-152X	C.CAPACITOR 50V 1500U	1	
C1162	NEH70GM-227X	E.CAPACITOR 4V 220U	1	
C1163	NCF21HZ-224X	C.CAPACITOR 50V 0.22U	1	
C1165,66	NCF21HZ-104X	C.CAPACITOR 50V 0.1U	2	
C1167,68	NEH71CM-106X	E.CAPACITOR 16V 10U	2	
C1169,70	NCF21HZ-104X	C.CAPACITOR 50V 0.1U	2	
C1171	NDC21HJ-220X	E.CAPACITOR 16V 22P	1	
C1172	NDC21HJ-271X	C.CAPACITOR 50V 270P	1	
C1601-04	NEN51AM-336X	E.CAPACITOR 10V 33U	4	
C1605	QETN1HM-225Z	E.CAPACITOR 50V 2.2U	1	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
C1606-09	NEN51AM-336X	E.CAPACITOR 10V 33U	4	
C1610	QETN1HM-225Z	E.CAPACITOR 50V 2.2U	1	
C1611-14	NEN51AM-336X	E.CAPACITOR 10V 33U	4	
C1615	QETN1HM-225Z	E.CAPACITOR 50V 33U	1	
C1616,17	NDC21HJ-120X	C.CAPACITOR 50V 12P	2	
C1618	NCB21CK-224X	C.CAPACITOR 16V 0.22U	1	
C1619	NCF21HZ-223X	C.CAPACITOR 50V 0.22U	1	
C1620	NEH71CM-476X	E.CAPACITOR 16V 47U	1	
C1621	NCF21HZ-103X	C.CAPACITOR 50V 0.01U	1	
C1622,23	NCB21EK-104X	C.CAPACITOR 25V 0.1U	2	
C1624	NEH71HM-225X	E.CAPACITOR 50V 2.2U	1	
C1625	NCB21HK-223X	C.CAPACITOR 50V 0.022U	1	
C1626	NEH71CM-106X	E.CAPACITOR 16V 10U	1	
C1627	NEH71AM-107X	C.CAPACITOR 10V 100U	1	
C1628	NCF21HZ-103X	C.CAPACITOR 50V 0.01U	1	
C1629,30	NEH71HM-225X	E.CAPACITOR 50V 2.2U	2	
C1631-36	NCB21EK-104X	C.CAPACITOR 25V 0.1U	6	
C1637	NCF21HZ-103X	C.CAPACITOR 50V 0.01U	1	
C1638	NEH71AM-107X	C.CAPACITOR 10V 100U	1	
C1639	NEH71CM-476X	E.CAPACITOR 16V 47U	1	
C1640	NEH71HM-105X	E.CAPACITOR 50V 1U	1	
C1641	NEH71AM-107X	C.CAPACITOR 10V 100U	1	
C1642	NCF21HZ-103X	C.CAPACITOR 50V 0.01U	1	
C1643	NEH71HM-225X	E.CAPACITOR 50V 2.2U	1	
C1644	NEH71CM-106X	E.CAPACITOR 16V 10U	1	
C1645	NCB21EK-104X	C.CAPACITOR 25V 0.1U	1	
C1646,47	NCB21CK-474X	C.CAPACITOR 16V 0.47U	2	
C1648,49	NEH71HM-225X	E.CAPACITOR 50V 2.2U	2	
C1651,52	NEH71AM-107X	C.CAPACITOR 10V 100U	2	
C1653	NCF21HZ-103X	C.CAPACITOR 50V 0.01U	1	
C1654	NEH71CM-476X	E.CAPACITOR 16V 47U	1	
C1655	NCF21HZ-103X	C.CAPACITOR 50V 0.01U	1	
C1656	NEH71AM-107X	C.CAPACITOR 10V 100U	1	
C1657,58	NCF21HZ-103X	C.CAPACITOR 50V 0.01U	2	
C1659	NDC21HJ-151X	C.CAPACITOR 50V 150P	1	
C1660	NCB21EK-104X	C.CAPACITOR 25V 0.01U	1	
C1662	NCB21EK-104X	C.CAPACITOR 25V 0.01U	1	
C1663	NEH71AM-107X	C.CAPACITOR 10V 100U	1	
C1664	NCB21EK-104X	C.CAPACITOR 25V 0.01U	1	
C1665-67	NEH71AM-107X	C.CAPACITOR 10V 100U	3	
C1801	NCF21HZ-104X	C.CAPACITOR 50V 0.1U	1	
C1802	NEH70JM-107X	E.CAPACITOR 6.3V 100U	1	
C1803	NCF21HZ-103X	C.CAPACITOR 50V 0.01U	1	
C1804	NDC21HJ-271X	C.CAPACITOR 50V 270P	1	
C1806	NCF21HZ-103X	C.CAPACITOR 50V 0.1U	1	
C1807	NCB21HK-472X	C.CAPACITOR 50V 4700P	1	
C1808	NCF21EZ-104X	C.CAPACITOR 25V 0.1U	1	
C1809	NEH71HM-105X	E.CAPACITOR 50V 1U	1	
C1810	NEH71CM-476X	E.CAPACITOR 16V 47U	1	
C1811	NCF21HZ-103X	C.CAPACITOR 50V 0.01U	1	
C1812	NCF21HZ-104X	C.CAPACITOR 50V 0.1U	1	
C1813	NEH70JM-107X	E.CAPACITOR 6.3V 100U	1	
C1814	NCF21HZ-103X	C.CAPACITOR 50V 0.01U	1	
C1815	NDC21HJ-271X	C.CAPACITOR 50V 270P	1	
C1816	NCB21HK-102X	C.CAPACITOR 50V 1000P	1	
CN100C	QGA2501C5-03	CONNECTOR	1	
CN100A	QGA2501F1-06	CONNECTOR	1	
CN100U	QGA2501F1-09	CONNECTOR	1	
D1101-04	MA111	DIODE	4	
D1601,02	MA111	DIODE	2	
D1605	MA111	DIODE	1	
D1606	MA3030-H	DIODE	1	
D1607-20	MA111	DIODE	14	
D1801-06	MA3051-M	DIODE	6	
D1807	MA111	DIODE	1	
D1808-18	MA3051-M	DIODE	11	
IC1101	M52346SP	IC	1	
IC1102,03	JLC1562BF	IC	2	
IC1104	EPF6016ATC	IC	1	
IC1105	EPC1441V1700	IC	1	
IC1106	TLC2932IPW	IC	1	
IC1109	BA033FP	IC	1	

Components identified with the mark ⚠ have the special characterisitics for safety.
When replacing any of these components, use onlly the same type.

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
IC1601	TA1276AN	IC	1	
IC1602	M52055FP	IC	1	
IC1603	TC4053BF	IC	1	
IC1604	M52055FP	IC	1	
IC1605	TC4053BF	IC	1	
IC1606	M52055FP	IC	1	
IC1607	TC4053BF	IC	1	
IC1608	BA09FP	IC	1	
IC1801	MB90F553H170	IC	1	
IC1802	MN1382-Q	IC	1	
IC1803	TC4053BF	IC	1	
IC1804	M35045-075SP	IC	1	
IC1805	24C16V1700CG	IC	1	
K1103	CE42136-A01Y	BEAD CORE	1	
LC1101-04	NQR0313-009X	FILTER	4	
Q1101	2SC2412K/QR/	TRANSISTOR	1	
Q1102	2SA1037AK/QR	TRANSISTOR	1	
Q1103-07	2SC2412K/QR/	TRANSISTOR	5	
Q1601,02	2SC2412K/QR/	TRANSISTOR	2	
Q1603	2SA1034AK/QR	TRANSISTOR	1	
Q1604,05	2SC2412K/QR/	TRANSISTOR	2	
Q1606	2SA1034AK/QR	TRANSISTOR	1	
Q1607,08	2SC2412K/QR/	TRANSISTOR	2	
Q1609	2SA1034AK/QR	TRANSISTOR	1	
Q1610,11	2SC2412K/QR/	TRANSISTOR	2	
Q1612	2SA1034AK/QR	TRANSISTOR	1	
Q1613,14	2SC2412K/QR/	TRANSISTOR	2	
Q1615	2SA1034AK/QR	TRANSISTOR	1	
Q1616,17	2SC2412K/QR/	TRANSISTOR	2	
Q1618	2SA1034AK/QR	TRANSISTOR	1	
Q1619	2SA1035AK/QR	TRANSISTOR	1	
Q1620	2SA1036AK/QR	TRANSISTOR	1	
Q1621	2SA1037AK/QR	TRANSISTOR	1	
Q1626	2SA1037AK/QR	TRANSISTOR	1	
Q1631,32	DTC124EK	TRANSISTOR	2	
Q1801,02	2SC2412K/QR/	TRANSISTOR	2	
Q1803	DTC124EK	TRANSISTOR	1	
R1101-03	NRSA02J-101X	M.RESISTOR 1/10W 100	3	
R1104	NRSA02J-104X	M.RESISTOR 1/10W 100	1	
R1105	NRSA02J-823X	M.RESISTOR 1/10W 82K	1	
R1106	NRSA02J-473X	M.RESISTOR 1/10W 47K	1	
R1107	NRSA02J-273X	M.RESISTOR 1/10W 27K	1	
⚠ R1108-10	NRSA02J-102X	M.RESISTOR 1/10W 1K	3	
R1111	NRSA02J-183X	M.RESISTOR 1/10W 18K	1	
R1112,13	NRSA02J-101X	M.RESISTOR 1/10W 100	2	
⚠ R1114	NRSA02J-102X	M.RESISTOR 1/10W 1K	1	
R1120	NRSA02J-822X	M.RESISTOR 1/10W 8.2K	1	
R1121	NRSA02J-272X	M.RESISTOR 1/10W 2.7K	1	
⚠ R1122	NRSA02J-182X	M.RESISTOR 1/10W 1.8K	1	
R1123	NRSA02J-122X	M.RESISTOR 1/10W 1.2K	1	
R1124-26	NRSA02J-272X	M.RESISTOR 1/10W 2.7K	3	
R1131-34	NRSA02J-101X	M.RESISTOR 1/10W 100	4	
⚠ R1135	NRSA02J-0R0X	M.RESISTOR 1/10W 0	1	
R1136	NRSA02J-103X	M.RESISTOR 1/10W 10K	1	
⚠ R1137	NRSA02J-102X	M.RESISTOR 1/10W 1K	1	
R1138	NRSA02J-103X	M.RESISTOR 1/10W 10K	1	
⚠ R1139	NRSA02J-102X	M.RESISTOR 1/10W 1K	1	
R1140	NRSA02J-103X	M.RESISTOR 1/10W 10K	1	
⚠ R1141,42	NRSA02J-0R0X	M.RESISTOR 1/10W 0	2	
⚠ R1143-49	NRSA02J-102X	M.RESISTOR 1/10W 1K	7	
R1150	NRSA02J-103X	M.RESISTOR 1/10W 10K	1	
⚠ R1151	NRSA02J-102X	M.RESISTOR 1/10W 1K	1	
R1161	NRSA02J-103X	M.RESISTOR 1/10W 10K	1	
R1162,63	NRSA02J-221X	M.RESISTOR 1/10W 220	2	
⚠ R1165	NRSA02J-0R0X	M.RESISTOR 1/10W 0	1	
⚠ R1166	NRSA02J-102X	M.RESISTOR 1/10W 1K	1	
R1168	NRSA02J-391X	M.RESISTOR 1/10W 390	1	
R1170	NRSA02J-332X	M.RESISTOR 1/10W 3.3K	1	
⚠ R1171,72	NRSA02J-0R0X	M.RESISTOR 1/10W 0	2	
R1175	NRSA02J-472X	M.RESISTOR 1/10W 4.7K	1	
R1176	NRSA02J-221X	M.RESISTOR 1/10W 220	1	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
⚠ R1177-79	NRSA02J-102X	M.RESISTOR 1/10W 1K	3	
R1601	NRSA02J-101X	M.RESISTOR 1/10W 100	1	
R1602	NRSA02J-561X	M.RESISTOR 1/10W 560	1	
R1603,04	NRSA02J-272X	M.RESISTOR 1/10W 2.7K	2	
R1605	NRSA02J-561X	M.RESISTOR 1/10W 560	1	
R1606	NRSA02J-272X	M.RESISTOR 1/10W 2.7K	1	
R1607	NRSA02J-101X	M.RESISTOR 1/10W 100	1	
R1608	NRSA02J-272X	M.RESISTOR 1/10W 2.7K	1	
R1609	NRSA02J-101X	M.RESISTOR 1/10W 100	1	
R1610	NRSA02J-561X	M.RESISTOR 1/10W 560	1	
R1611,12	NRSA02J-272X	M.RESISTOR 1/10W 2.7K	2	
R1613	NRSA02J-561X	M.RESISTOR 1/10W 560	1	
R1614	NRSA02J-272X	M.RESISTOR 1/10W 2.7K	1	
R1615	NRSA02J-101X	M.RESISTOR 1/10W 100	1	
R1616	NRSA02J-272X	M.RESISTOR 1/10W 2.7K	1	
R1617	NRSA02J-101X	M.RESISTOR 1/10W 100	1	
R1618	NRSA02J-561X	M.RESISTOR 1/10W 560	1	
R1619,20	NRSA02J-272X	M.RESISTOR 1/10W 2.7K	2	
R1621	NRSA02J-561X	M.RESISTOR 1/10W 560	1	
R1622	NRSA02J-272X	M.RESISTOR 1/10W 2.7K	1	
R1623	NRSA02J-101X	M.RESISTOR 1/10W 100	1	
R1624	NRSA02J-272X	M.RESISTOR 1/10W 2.7K	1	
⚠ R1625	NRSA02J-102X	M.RESISTOR 1/10W 1K	1	
R1626-28	NRSA02J-563X	M.RESISTOR 1/10W 56K	3	
R1629	NRSA02J-333X	M.RESISTOR 1/10W 33K	1	
R1630	NRSA02J-272X	M.RESISTOR 1/10W 2.7K	1	
R1631	NRSA02J-391X	M.RESISTOR 1/10W 390	1	
R1632	NRSA02J-101X	M.RESISTOR 1/10W 100	1	
⚠ R1633,34	NRSA02J-0R0X	M.RESISTOR 1/10W 0	2	
R1635	NRSA02J-103X	M.RESISTOR 1/10W 10K	1	
R1636-41	NRSA02J-101X	M.RESISTOR 1/10W 100	6	
R1642	NRSA02J-332X	M.RESISTOR 1/10W 3.3K	1	
⚠ R1644-46	NRSA02J-102X	M.RESISTOR 1/10W 1K	3	
R1647-49	NRSA02J-101X	M.RESISTOR 1/10W 100	3	
⚠ R1650	NRSA02J-0R0X	M.RESISTOR 1/10W 0	1	
R1651,52	NRSA02J-562X	M.RESISTOR 1/10W 5.6K	2	
⚠ R1653-55	NRSA02J-392X	M.RESISTOR 1/10W 3.9K	3	
R1656-58	NRSA02J-271X	M.RESISTOR 1/10W 270	3	
R1659	NRSA02J-561X	M.RESISTOR 1/10W 560	1	
R1660	NRSA02J-473X	M.RESISTOR 1/10W 47K	1	
⚠ R1663	NRSA02J-0R0X	M.RESISTOR 1/10W 0	1	
⚠ R1664	NRSA02J-102X	M.RESISTOR 1/10W 1K	1	
R1671	NRSA02J-562X	M.RESISTOR 1/10W 5.6K	1	
⚠ R1672,73	NRSA02J-0R0X	M.RESISTOR 1/10W 0	2	
R1674	NRSA02J-153X	M.RESISTOR 1/10W 15K	1	
R1675,76	NRSA02J-183X	M.RESISTOR 1/10W 18K	2	
⚠ R1677	NRSA02J-0R0X	M.RESISTOR 1/10W 0	1	
R1678	NRSA02J-153X	M.RESISTOR 1/10W 15K	1	
R1679,80	NRSA02J-183X	M.RESISTOR 1/10W 18K	2	
⚠ R1681	NRSA02J-0R0X	M.RESISTOR 1/10W 0	1	
R1682	NRSA02J-153X	M.RESISTOR 1/10W 15K	1	
R1683,84	NRSA02J-183X	M.RESISTOR 1/10W 18K	2	
R1685-90	NRSA02J-561X	M.RESISTOR 1/10W 560	6	
R1691	NRSA02J-154X	M.RESISTOR 1/10W 150K	1	
R1692	NRSA02J-184X	M.RESISTOR 1/10W 180K	1	
R1815-20	NRSA02J-101X	M.RESISTOR 1/10W 100	6	
R1825-28	NRSA02J-472X	M.RESISTOR 1/10W 4.7K	4	
R1829	NRSA02J-101X	M.RESISTOR 1/10W 100	1	
R1833-47	NRSA02J-101X	M.RESISTOR 1/10W 100	6	
R1848	NRSA02J-103X	M.RESISTOR 1/10W 10K	1	
R1850-56	NRSA02J-103X	M.RESISTOR 1/10W 10K	7	
R1859	NRSA02J-101X	M.RESISTOR 1/10W 100	1	
R1860	NRSA02J-103X	M.RESISTOR 1/10W 10K	1	
R1861	NRSA02J-101X	M.RESISTOR 1/10W 100	1	
R1869	NRSA02J-103X	M.RESISTOR 1/10W 10K	1	
R1875-77	NRSA02J-103X	M.RESISTOR 1/10W 10K	3	
R1882	NRSA02J-101X	M.RESISTOR 1/10W 100	1	
R1890,91	NRSA02J-101X	M.RESISTOR 1/10W 100	2	
R1897,98	NRSA02J-472X	M.RESISTOR 1/10W 4.7K	2	
R1901-07	NRSA02J-101X	M.RESISTOR 1/10W 100	7	
⚠ R1910	NRSA02J-0R0X	M.RESISTOR 1/10W 0	1	
R1911	NRSA02J-472X	M.RESISTOR 1/10W 4.7K	1	
R1912	NRSA02J-272X	M.RESISTOR 1/10W 2.7K	1	
⚠ R1913	NRSA02J-223X	M.RESISTOR 1/10W 22K	1	
R1914-16	NRSA02J-473X	M.RESISTOR 1/10W 47K	3	

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Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
R1917,18	NRSA02J-101X	M.RESISTOR 1/10W 100	2	
R1919,20	NRSA02J-472X	M.RESISTOR 1/10W 4.7K	2	
RA1131-34	NRZ0040-103X	COMBI.R-R	4	
RA1135,36	NRZ0040-101X	COMBI.R-R	2	
RA1801,02	NRZ0040-101X	COMBI.R-R	2	
RA1803-05	NRZ0040-103X	COMBI.R-R	3	
RA1806-09	NRZ0040-101X	COMBI.R-R	4	
RA1810	NRZ0040-103X	COMBI.R-R	1	
RA1811-14	NRZ0040-101X	COMBI.R-R	4	
SK1101	CEMS007-008	IC SOCKET	1	
SK1801	CEMS007-008	IC SOCKET	1	
X1601	CE40749-001Z	CRYSTAL OSCILLATOR	1	
X1602	CE40668-001Z	CRYSTAL OSCILLATOR	1	
X1603	CSB503F30	CRYSTAL OSCILLATOR	1	
X1801	CST4.00MGW	CRYSTAL OSCILLATOR	1	
■ E2	FX-2072A	MAIN P.C.BOARD	1	(RTL)
C2401	QFLC1HJ-103Z	P.CAPACITOR 50V 0.01U	1	
C2402	QFV71HJ-334Z	P.CAPACITOR 50V 0.33U	1	
C2404	QEHR1VM-107Z	E.CAPACITOR 35V 100U	1	
C2405	QCB32HK-561Z	C.CAPACITOR 500V 560P	1	
C2406	QFLC1HJ-104Z	P.CAPACITOR 50V 100U	1	
C2407	QFLC1HJ-103Z	P.CAPACITOR 50V 0.01U	1	
C2409	QEHQ1EM-228	E.CAPACITOR 25V 2200U	1	
C2420	QEHQ1EM-228	E.CAPACITOR 25V 2200U	1	
C2501	QEZ0368-227	E.CAPACITOR 220U	1	
C2502	QFLC2AK-224Z	P.CAPACITOR 50V 0.22U	1	
C2503	QCB32HK-151Z	C.CAPACITOR 500V 150P	1	
C2504	QEZ0097-106R	E.CAPACITOR 160V 10U	1	
C2506	QCB32HK-152Z	C.CAPACITOR 500V 1500P	1	
C2507	QFLC1HJ-222Z	P.CAPACITOR 50V 2200P	1	
C2508,09	QEHR1CM-107Z	E.CAPACITOR 16V 100U	2	
C2510	QFV71HJ-474Z	P.CAPACITOR 50V 0.47U	1	
C2511	QFLC1HJ-122Z	P.CAPACITOR 50V 1200P	1	
C2512	QEHR1CM-227Z	E.CAPACITOR 16V 110U	1	
C2513,14	QFLC1HJ-472Z	P.CAPACITOR 50V 4700P	2	
C2515	QFLC1HJ-392Z	P.CAPACITOR 50V 3900P	1	
C2516	QFLC2AK-224Z	P.CAPACITOR 100V 0.22U	1	
C2517,18	QETN1HM-105Z	E.CAPACITOR 50V 1U	2	
⚠ C2521	QFZ0196-302	P.CAPACITOR 3000P	1	
C2522	QFLC1HJ-823Z	P.CAPACITOR 50V 0.082U	1	
⚠ C2523	QFZ0196-302	P.CAPACITOR 3000P	1	
C2524,25	QFLC2AJ-103Z	P.CAPACITOR 100V 0.01U	2	
C2527	QFLC1HJ-472Z	P.CAPACITOR 50V 4700P	1	
C2528	QETN1CM-107Z	E.CAPACITOR 16V 100U	1	
C2550	QETN1HM-475Z	E.CAPACITOR 50V 4.7U	1	
C2551	QFV71HJ-274Z	P.CAPACITOR 50V 0.27U	1	
⚠ C2552	QFZ0196-102	P.CAPACITOR 1000P	1	
C2553	QFV71HJ-274Z	P.CAPACITOR 50V 0.27U	1	
C2554	QEHQ2AM-227	E.CAPACITOR 100V 220U	1	
C2555	QFK62AK-334Z	P.CAPACITOR 100V 0.33U	1	
C2557	QETN1CM-337Z	E.CAPACITOR 16V 330U	1	
C2558	QENC1HM-105Z	E.CAPACITOR 50V 1U	1	
C2559,60	QEHR1HM-105Z	E.CAPACITOR 50V 1U	2	
C2562	QEHR2CM-336Z	E.CAPACITOR 160V 33U	1	
C2570	QEHR1HM-105Z	E.CAPACITOR 50V 1U	1	
C2571	QETN1HM-106Z	E.CAPACITOR 50V 10U	1	
C2601	QENC1HM-225Z	E.CAPACITOR 50V 2.2U	1	
C2602	QETN1HM-106Z	E.CAPACITOR 50V 10U	1	
C2604	QEHR2CM-336Z	E.CAPACITOR 160V 33U	1	
C2605	QENC1HM-106Z	E.CAPACITOR 50V 10U	1	
C2606	QFLC1HJ-472Z	P.CAPACITOR 50V 4700P	1	
C2607	QENC1HM-225Z	E.CAPACITOR 50V 2.2U	1	
C2620	QEHR1HM-336Z	E.CAPACITOR 50V 33U	1	
C2801	QETN1CM-228Z	E.CAPACITOR 16V 2200U	1	
C2802	QENC1HM-105Z	E.CAPACITOR 50V 1U	1	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
C2803	QFLC1HJ-332Z	P.CAPACITOR 50V 3300P	1	
C2804	QETN1HM-225Z	E.CAPACITOR 50V 2.2U	1	
C2805	QETN1HM-106Z	E.CAPACITOR 50V 10U	1	
C2806	QETN1HM-475Z	E.CAPACITOR 50V 4.7U	1	
C2807,08	QETN1HM-336Z	E.CAPACITOR 50V 33U	2	
C2809	QETN1CM-228Z	E.CAPACITOR 16V 2200U	1	
C2810,11	QFV71HJ-104Z	P.CAPACITOR 50V 0.1U	2	
C2812,13	QETN1CM-228Z	E.CAPACITOR 16V 2200U	2	
C2814	QETN1CM-227Z	E.CAPACITOR 16V 220U	1	
⚠ C2901	QFZ9036-104	P.CAPACITOR 250V 0.1U	1	
⚠ C2902-05	QCZ9078-472	C.CAPACITOR 250V 4700P	4	
⚠ C2906	QETM2GM-226	E.CAPACITOR 400V 22U	1	
C2908	QEZ0550-337	E.CAPACITOR 330U	1	
C2909	QCB32HK-472Z	C.CAPACITOR 500V 4700P	1	
C2910	QEHR1EM-107Z	E.CAPACITOR 25V 100U	1	
⚠ C2912,13	QCZ9075-472	C.CAPACITOR 4700P	2	
⚠ C2914	QFZ9036-104	C.CAPACITOR 250V 0.1U	1	
C2915	QCZ0122-681	C.CAPACITOR 680P	1	
C2916-19	QCB32HK-271Z	C.CAPACITOR 270P	4	
C2920	QTMN1EM-337Z	E.CAPACITOR 25V 330U	1	
C2921	QEHR1CM-107Z	E.CAPACITOR 16V 100U	1	
C2922	QEHR1CM-337Z	E.CAPACITOR 16V 330U	1	
C2923	QEZ0368-227	E.CAPACITOR 270U	1	
C2924	QETN1HM-106Z	E.CAPACITOR 50V 10U	1	
C2925	QETM2DM-337	E.CAPACITOR 200V 330U	1	
C2926	QETM1EM-228	E.CAPACITOR 25V 2200U	1	
C2927	QTMM1EM-228	E.CAPACITOR 25V 2200U	1	
C2928	QETN1HM-106Z	E.CAPACITOR 50V 10U	1	
C2929	QFV71HJ-224Z	P.CAPACITOR 50V 0.22U	1	
C2930	QETN1HM-106Z	E.CAPACITOR 50V 10U	1	
C2931	QEZ0256-228	E.CAPACITOR 2200U	1	
C2932	QEHR1CM-107Z	E.CAPACITOR 16V 100U	1	
C2933	QEZ0256-128	E.CAPACITOR 1200U	1	
C2934	QETN1CM-107Z	E.CAPACITOR 16V 100U	1	
C2935	QEHR1EM-477Z	E.CAPACITOR 25V 470U	1	
C2936	QETN1CM-228Z	E.CAPACITOR 16V 2200U	1	
C2937	QETN1HM-106Z	E.CAPACITOR 50V 10U	1	
C2939	QEHR1CM-107Z	E.CAPACITOR 16V 100U	1	
C2940	QFLC1HJ-103Z	P.CAPACITOR 50V 0.01U	1	
C2941	QFLC1HJ-102Z	P.CAPACITOR 50V 1000P	1	
C2942	QENC1HM-106Z	E.CAPACITOR 50V 10U	1	
C2943	QFLC1HJ-102Z	P.CAPACITOR 50V 1000P	1	
C2944	QTMN1EM-477Z	E.CAPACITOR 25V 470U	1	
C2950	QETN1CM-107Z	E.CAPACITOR 16V 100U	1	
C2952	QETN1CM-108Z	E.CAPACITOR 16V 1000U	1	
C2953	QFLC1HJ-103Z	P.CAPACITOR 50V 0.01U	1	
C2954	QETN1CM-227Z	E.CAPACITOR 16V 220U	1	
C2955	QEHR2CM-335Z	E.CAPACITOR 160V 3.3U	1	
C2958	QEHR1EM-107Z	E.CAPACITOR 25V 100U	1	
CN0S1	QGA2501C506Z	CONNECTOR	1	
CN200T	QGA2501C1-10	CONNECTOR	1	
CN200V	QGA3901C1-02	CONNECTOR	1	
CN200H	QGA3901C1-06	CONNECTOR	1	
⚠ CN200D	QGA7901C1-02	CONNECTOR	1	
⚠ CN200P	QGA7901C1-02	CONNECTOR	1	
⚠ CN20E3	CE41507-001P	CONNECTOR	1	
CN2011	QGB2501J1-10	CONNECTOR	1	
⚠ CP2901	QMFZ034-100Z	FUSE	1	
⚠ CP2904	ICP-N75-Y	IC PROTECTOR	1	
D2402,03	RD33EB2	DIODE	2	
D2404	1SR35-400A-T	DIODE	1	
⚠ D2412	1SS133	DIODE	1	
D2413,14	MTZJ6.8A	DIODE	2	
D2501	1SS244	DIODE	1	
D2502,03	MTZJ12C	DIODE	2	
D2504	RL4Z	DIODE	1	
⚠ D2505-07	1SS133	DIODE	3	
⚠ D2508	RGP10J	DIODE	1	
D2509,10	MTZJ5.6B	DIODE	2	
⚠ D2511	1SS133	DIODE	1	
D2512	AG01Z	DIODE	1	
D2513	1SS244	DIODE	1	

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Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
D2514	AG01Z	DIODE	1	
D2515	MTZJ5.1B	DIODE	1	
⚠ D2516	1SS133	DIODE	1	
D2517	RK14	DIODE	1	
D2520	RU4DSF1	DIODE	1	
D2521	CTU-G3DR	DIODE	1	
D2522	RG2A2LFC4	DIODE	1	
D2523	1SS244	DIODE	1	
D2550,51	1SR35-400A-T	DIODE	2	
⚠ D2552	RGP10J	DIODE	1	
⚠ D2555	RGP10J	DIODE	1	
D2602	MTZJ5.1B	DIODE	1	
D2603	MTZJ27B	DIODE	1	
D2801	MTZJ11A	DIODE	1	
⚠ D2802	1SS133	DIODE	1	
⚠ D2901	RBV-406	DIODE	1	
D2902	RU2LFA1	DIODE	1	
D2903,04	AG01Z	DIODE	2	
D2908	RM2CLFA1	DIODE	1	
D2909	AG01	DIODE	1	
D2910	SF6L20U	DIODE	1	
D2911,12	RG2ALFC4	DIODE	2	
⚠ D2913	RU3YXLFC4	DIODE	1	
⚠ D2914,15	1SS133	DIODE	2	
D2916,17	MTZJ3.3A	DIODE	2	
⚠ D2918	1SS133	DIODE	1	
D2919,20	MTZJ12C	DIODE	2	
⚠ D2921-23	1SS133	DIODE	3	
D2950	RK44LFT4	DIODE	1	
D2951	MTZJ5.6B	DIODE	1	
⚠ D2952	1SS133	DIODE	1	
⚠ F2901	QMF51D2-6R3J	FUSE	1	
IC2401	AN5539-LF	IC	1	
IC2510	JLC1562BN	IC	1	
IC2601	UPC4556C	IC	1	
⚠ IC2801	AN5265	IC	1	
⚠ IC2901	STR-F6658BF7	IC	1	
⚠ IC2902	QAL0256-001	IC	1	
IC2903	SE140N	IC	1	
IC2904	TA79012S	IC	1	
IC2905	BA12T	IC	1	
IC2906	BA05T	IC	1	
IC2907	SI8050S	IC	1	
IC2911	PQ30RV21	IC	1	
K2501	QQR0872-002	FERRITE BEAD	1	
K2502	QQR0872-001Y	FERRITE CORE	1	
L2501	QQLZ020-801	COIL	1	
L2502,03	QQR0666-001	COIL	2	
L2504	QQLZ020-801	COIL	1	
L2505	QQL42AK-821Z	COIL 820UH	1	
L2551	QQLZ018-380	COIL	1	
L2553	QQL50AK-221Z	COIL	1	
L2801	QQL244K-4R7Z	COIL 4.7UH	1	
⚠ L2901	QQR0676-004	COIL	1	
⚠ L2902	QQR0646-006	COIL	1	
L2904	QQL244K-100Z	COIL 10UH	1	
L2910	QQR0518-001	COIL	1	
L2911	QQL50AK-100Z	COIL	1	
⚠ PC2901	TLP721FD4-GR	PHOTO COUPLER	1	
⚠ PC2902	TLP759F/D4/	PHOTO COUPLER	1	
Q2401	2SC3311A/QR/	TRANSISTOR	1	
Q2501	IRF9630	FET	1	
Q2502	2SC5445	TRANSISTOR	1	
Q2503	2SC3311A/QR/	TRANSISTOR	1	
Q2504	2SA1309A/QR/	TRANSISTOR	1	
Q2505	2SC3311A/QR/	TRANSISTOR	1	
Q2506	2SB946/P/	TRANSISTOR	1	
Q2507	IRFZ14	FET	1	
Q2508	2SC3311A/QR/	TRANSISTOR	1	
Q2511	2SC3311A/QR/	TRANSISTOR	1	
Q2512	DTC114ES	TRANSISTOR	1	
Q2513	2SA1370/E/	TRANSISTOR	1	
Q2514	DTC124ES	TRANSISTOR	1	
Q2550	2SK2459N-F54	FET	1	
Q2551	2SK2477	FET	1	
Q2601	2SC3311A/QR/	TRANSISTOR	1	
Q2602	2SD1271A-P	TRANSISTOR	1	
Q2603	2SB861/C/	TRANSISTOR	1	
Q2604	2SC1505/MLK/	TRANSISTOR	1	
Q2901,02	2SA1309A/QR/	TRANSISTOR	2	
Q2903,04	2SA1370/E/	TRANSISTOR	2	
Q2905	2SC3311A/QR/	TRANSISTOR	1	
Q2906	2SA1309A/QR/	TRANSISTOR	1	
Q2910	2SC3311A/QR/	TRANSISTOR	1	
Q2911	2SC2229/Y/	TRANSISTOR	1	
R2401,02	QRE141J-122Y	C.RESISTOR 1/4W 1.2K	2	
⚠ R2403,04	QRE141J-272Y	C.RESISTOR 1/4W 2.7K	2	
⚠ R2405	QRE141J-102Y	C.RESISTOR 1/4W 1K	1	
R2406	QRE141J-221Y	C.RESISTOR 1/4W 220	1	
R2407	QRE141J-0R0Y	C.RESISTOR 1/4W 0	1	
R2408	QRE141J-152Y	C.RESISTOR 1/4W 1.5K	1	
⚠ R2409	QRE141J-103Y	C.RESISTOR 1/4W 10K	1	
⚠ R2410	QRX029J-1R5	M.RESISTOR 1.5	1	
R2411	QRE121J-120Y	C.RESISTOR 1/4W 12	1	
⚠ R2412	QRE141J-102Y	C.RESISTOR 1/4W 1K	1	
R2419	QRG01GJ-101	M.RESISTOR 1W 100	1	
⚠ R2430	QRE141J-103Y	C.RESISTOR 1/4W 10K	1	
R2501	QRE141J-184Y	C.RESISTOR 1/4W 180K	1	
R2502	QRE141J-122Y	C.RESISTOR 1/4W 1.2K	1	
⚠ R2503	QRE141J-224Y	C.RESISTOR 1/4W 220K	1	
R2504	QRA14CF-3302	M.RESISTOR 1/4W 33K	1	
⚠ R2505	QRA14CF-2202	M.RESISTOR 1/4W 22K	1	
⚠ R2508	QRA14CF-5101	M.RESISTOR 1/4W 5.1K	1	
⚠ R2509	QRE141J-103Y	C.RESISTOR 1/4W 10K	1	
⚠ R2510	QRE141J-223Y	C.RESISTOR 1/4W 22K	1	
⚠ R2511	QRE141J-103Y	C.RESISTOR 1/4W 10K	1	
R2512	QRE141J-101Y	C.RESISTOR 1/4W 100	1	
R2513	QRE141J-100Y	C.RESISTOR 1/4W 10	1	
⚠ R2514	QRE141J-473Y	C.RESISTOR 1/4W 47K	1	
R2515	QRE141J-472Y	C.RESISTOR 1/4W 4.7K	1	
R2516	QRG01GJ-470	M.RESISTOR 1W 47	1	
⚠ R2517	QRE141J-102Y	C.RESISTOR 1/4W 1K	1	
R2518	QRX01GJ-R68	M.RESISTOR 1/4W 0.68	1	
R2519	QRT039J-1R0	M.RESISTOR 1/4W 1	1	
R2520	QRG039J-100	M.RESISTOR 3W 10	1	
R2521	QRE121J-101Y	C.RESISTOR 1/4W 100	1	
R2522,23	QRE141J-470Y	C.RESISTOR 1/4W 47	2	
R2524	QRX029J-2R2	M.RESISTOR 2.2	1	
R2525	QRE121J-124Y	C.RESISTOR 1/4W 120K	1	
R2526	QRE141J-153Y	C.RESISTOR 1/4W 15K	1	
⚠ R2527	QRE141J-102Y	C.RESISTOR 1/4W 1K	1	
⚠ R2528	QRE141J-103Y	C.RESISTOR 1/4W 10K	1	
R2529	QRE141J-0R0Y	C.RESISTOR 1/4W 0	1	
R2530	QRE121J-121Y	C.RESISTOR 1/4W 120	1	
R2531	QRE121J-221Y	C.RESISTOR 1/4W 220	1	
⚠ R2532,33	QRE141J-103Y	C.RESISTOR 1/4W 10K	2	
R2534	QRL029J-101	M.RESISTOR 1W 100	1	
R2535	QRE141J-152Y	C.RESISTOR 1/4W 1.5K	1	
R2536-38	QRE141J-153Y	C.RESISTOR 1/4W 15K	3	
R2539	QRE141J-471Y	C.RESISTOR 1/4W 470	1	
R2540,41	QRE141J-472Y	C.RESISTOR 1/4W 4.7K	2	
R2543	QRE141J-472Y	C.RESISTOR 1/4W 4.7K	1	
R2545-49	QRE141J-472Y	C.RESISTOR 1/4W 4.7K	5	
R2550	QRM059J-R15	M.RESISTOR 5W 0.15	1	
R2551	QRE121J-152Y	C.RESISTOR 1/4W 1.5K	1	
⚠ R2552	QRA14CF-2203	M.RESISTOR 1/4W 220K	1	
R2553	QRG029J-330	M.RESISTOR 2W 33	1	
⚠ R2555	QRE141J-473Y	C.RESISTOR 1/4W 47K	1	
⚠ R2556	QRZ9017-2R2	F.RESISTOR 1/4W 2.2	1	
⚠ R2557	QRE121J-330Y	C.RESISTOR 1/4W 33	1	
⚠ R2558,59	QRE141J-102Y	C.RESISTOR 1/4W 1K	2	
R2561	QRE141J-123Y	C.RESISTOR 1/4W 12K	1	
⚠ R2562	QRE141J-332Y	C.RESISTOR 1/4W 3.3K	1	

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Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
⚠ R2563	QRE141J-272Y	C.RESISTOR 1/4W 2.7K	1	
⚠ R2564	QRE141J-103Y	C.RESISTOR 1/4W 10K	1	
R2601	QRE141J-682Y	C.RESISTOR 1/4W 6.8K	1	
R2602	QRE141J-123Y	C.RESISTOR 1/4W 12K	1	
R2603	QRE141J-393Y	C.RESISTOR 1/4W 39K	1	
R2604	QRE141J-153Y	C.RESISTOR 1/4W 15K	1	
R2605	QRE121J-332Y	C.RESISTOR 1/4W 3.3K	1	
⚠ R2606,07	QRE141J-104Y	C.RESISTOR 1/4W 100K	2	
R2608	QRE141J-153Y	C.RESISTOR 1/4W 15K	1	
R2609	QRE141J-823Y	C.RESISTOR 1/4W 82K	1	
R2610	QRE141J-100Y	C.RESISTOR 1/4W 10	1	
⚠ R2611,12	QRE141J-104Y	C.RESISTOR 1/4W 100K	2	
R2620	QRE121J-2R2Y	C.RESISTOR 1/4W 2.2K	1	
R2621	QRE141J-474Y	C.RESISTOR 1/4W 470K	1	
⚠ R2622	QRE141J-332Y	C.RESISTOR 1/4W 3.3K	1	
R2623	QRE121J-683Y	C.RESISTOR 1/4W 68K	1	
R2624	QRE141J-271Y	C.RESISTOR 1/4W 270K	1	
R2801	QRE121J-181Y	C.RESISTOR 1/4W 180K	1	
R2802	QRE141J-562Y	C.RESISTOR 1/4W 5.6K	1	
⚠ R2803	QRE141J-102Y	C.RESISTOR 1/4W 1K	1	
⚠ R2804	QRE141J-103Y	C.RESISTOR 1/4W 10K	1	
⚠ R2805	QRE141J-102Y	C.RESISTOR 1/4W 1K	1	
R2807	QRE141J-221Y	C.RESISTOR 1/4W 220	1	
⚠ R2808	QRE141J-223Y	C.RESISTOR 1/4W 22K	1	
R2809	QRE141J-100Y	C.RESISTOR 1/4W 10	1	
⚠ R2810	QRZ9021-8R2	F.RESISTOR 8.2	1	
R2901	QRG039J-683	M.RESISTOR 3W 68	1	
R2902,03	QRM059J-R15	M.RESISTOR 5W 0.15	2	
⚠ R2904	QRK126J-681X	C.RESISTOR 1/4W 680	1	
⚠ R2905	QRE141J-332Y	C.RESISTOR 1/4W 3.3K	1	
R2906	QRE141J-472Y	C.RESISTOR 1/4W 4.7K	1	
⚠ R2907	QRE141J-332Y	C.RESISTOR 1/4W 3.3K	1	
R2910	QRL029J-683	M.RESISTOR 2W 68K	1	
R2911	QRE121J-220Y	C.RESISTOR 1/4W 22	1	
R2920	QRE141J-3R3Y	C.RESISTOR 1/4W 3.3	1	
⚠ R2921	QRE141J-103Y	C.RESISTOR 1/4W 10K	1	
R2922	QRE141J-392Y	C.RESISTOR 1/4W 3.9K	1	
⚠ R2923	QRE141J-102Y	C.RESISTOR 1/4W 1K	1	
R2924	QRE141J-122Y	C.RESISTOR 1/4W 1.2K	1	
R2925,26	QRE141J-5R6Y	C.RESISTOR 1/4W 5.6	2	
R2927	QRE141J-120Y	C.RESISTOR 1/4W 12	1	
R2929,30	QRE141J-1R5Y	C.RESISTOR 1/4W 1.5	2	
R2931	QRE141J-683Y	C.RESISTOR 1/4W 68K	1	
⚠ R2932,33	QRE141J-103Y	C.RESISTOR 1/4W 10K	2	
R2934	QRE141J-683Y	C.RESISTOR 1/4W 68K	1	
⚠ R2935	QRE141J-223Y	C.RESISTOR 1/4W 22K	1	
⚠ R2936,37	QRE141J-103Y	C.RESISTOR 1/4W 10K	2	
R2938	QRE141J-222Y	C.RESISTOR 1/4W 2.2K	1	
R2939	QRE141J-152Y	C.RESISTOR 1/4W 1.5K	1	
R2940	QRE141J-1R5Y	C.RESISTOR 1/4W 1.5	1	
⚠ R2941	QRA14CF-1501	C.RESISTOR 1/4W 1.5K	1	
⚠ R2942	QRA14CF-3900	C.RESISTOR 1/4W 390	1	
R2943	QRE141J-470Y	C.RESISTOR 1/4W 47	1	
⚠ R2944	QRE141J-102Y	C.RESISTOR 1/4W 1K	1	
R2945	QRE141J-222Y	C.RESISTOR 1/4W 2.2K	1	
R2946	QRE141J-1R5Y	C.RESISTOR 1/4W 1.5K	1	
R2947	QRE141J-3R3Y	C.RESISTOR 1/4W 3.3K	1	
⚠ R2948	QRE141J-102Y	C.RESISTOR 1/4W 1K	1	
R2949	QRE121J-152Y	C.RESISTOR 1/4W 1.5K	1	
R2970	QRE141J-821Y	C.RESISTOR 1/4W 820	1	
R2971	QRE141J-472Y	C.RESISTOR 1/4W 4.7K	1	
R2972	QRE141J-153Y	C.RESISTOR 1/4W 15K	1	
⚠ R2973	QRE141J-103Y	C.RESISTOR 1/4W 10K	1	
⚠ R2974	QRE141J-473Y	C.RESISTOR 1/4W 47K	1	
R2975	QRL039J-562	M.RESISTOR 3W 5.6K	1	
⚠ RY2901,02	QSK0119-001	RELAY	2	
SG2501	CE42447-242	SPARK GAP	1	
T2501	QQR0663-001	TRANSFORMER	1	
⚠ T2502	CJ39720-00A	TRANSFORMER	1	
⚠ T2503	QQH0087-001	TRANSFORMER	1	
T2601	CE42710-001	TRANSFORMER	1	
⚠ T2901	QQS0091-001	TRANSFORMER	1	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
⚠ TH2901	QAD0137-4R5	THERMISTOR	1	
TP2001,02	CM42818-001	TEST POINT	2	
W2104	QRE141J-152	C.RESISTOR 1/4W 1.5K	1	
⚠ Z2901	ERZV10V621CS	DIODE	1	
		MISCELLANEOUS		
	CM32201-00A	SCREW	2	
	CE41667-003	SHEET	1	
	QYSPSPD3010Z	SCREW	1	
	CM32201-00A	SCREW	2	
	QYSPSPD3010Z	SCREW	1	
⚠	CEMG002-001Z	FUSE CLIP	1	
	QYSPSPD3010Z	SCREW	1	
	CM32201-00A	SCREW	4	
■ E3	FX-2112A	S.CORRECTION P.C.BOARD	1	(RTL)
C2501	QFZ0197-335	P.CAPACITOR 3.3U	1	
⚠ C2502	QFZ0197-754	P.CAPACITOR 0.75U	1	
⚠ C2504	QFZ0197-754	P.CAPACITOR 0.75U	1	
⚠ C2505	QFZ0197-564	P.CAPACITOR 0.56U	1	
C2506,07	QFLC1HJ-473Z	P.CAPACITOR 50V 0.047U	2	
C2508	QFLC1HJ-153Z	P.CAPACITOR 50V 0.015U	1	
C2510	QCB32HK-152Z	C.CAPACITOR 500V 1500P	1	
C2511,12	QETN1CM-107Z	E.CAPACITOR 16V 100U	2	
C2513,14	QENC1CM-476Z	E.CAPACITOR 16V 47U	2	
C2515	QFLC1HJ-104Z	P.CAPACITOR 50V 0.1U	1	
C2516,17	QENC1CM-476Z	E.CAPACITOR 16V 47U	2	
C2518,19	QFLC1HJ-104Z	P.CAPACITOR 50V 0.1U	2	
CN20RD	QGA2501F1-06	CONNECTOR	1	
CN200R	QGA2501F1-03	CONNECTOR	1	
CN2011	QGB2501K2-10	CONNECTOR	1	
⚠ D2501	1SS133	DIODE	1	
D2502	1SS244	DIODE	1	
⚠ D2520-25	1SS133	DIODE	6	
IC2501	LA6515	IC	1	
IC2502	BA15218N	IC	1	
L2501	QQR0915-006	COIL	1	
L2502	QQR0664-002	COIL	1	
Q2501-04	IRF640	FET	4	
Q2507-09	2SC3311A/QR/	TRANSISTOR	3	
Q2511,12	2SC3311A/QR/	TRANSISTOR	2	
⚠ R2501-03	QRE141J-102Y	C.RESISTOR 1/4W 1K	3	
⚠ R2504	QRE141J-473Y	C.RESISTOR 1/4W 47K	1	
⚠ R2505	QRA14CF-9312	M.RESISTOR	1	
⚠ R2506-08	QRE141J-272Y	C.RESISTOR 1/4W 2.7K	3	
⚠ R2510	QRE141J-272Y	C.RESISTOR 1/4W 2.7K	1	
R2511	QRE141J-183Y	C.RESISTOR 1/4W 18K	1	
R2512	QRL039J-561	M.RESISTOR 3W 560	1	
⚠ R2513	QRA14CF-2102	M.RESISTOR 1/4W 21K	1	
R2514	QRL029J-101	M.RESISTOR 2W 100	1	
R2515	QRL029J-470	M.RESISTOR 2W 47	1	
R2516	QRE141J-472Y	C.RESISTOR 1/4W 4.7K	1	
⚠ R2517	QRE141J-473Y	C.RESISTOR 1/4W 47K	1	
R2518	QRE141J-273Y	C.RESISTOR 1/4W 27K	1	
⚠ R2519	QRE141J-102Y	C.RESISTOR 1/4W 1K	1	
R2520	QRE141J-182Y	C.RESISTOR 1/4W 1.8K	1	
R2521	QRE141J-682Y	C.RESISTOR 1/4W 6.8K	1	
R2524	QRG01GJ-560	M.RESISTOR 1W 56	1	

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Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
⚠ R2525	QRE141J-681Y	C.RESISTOR 1/4W 680	1	
R2526-29	QRE141J-821Y	C.RESISTOR 1/4W 820	4	
R2530,31	QRG01GJ-391	M.RESISTOR 1W 390	2	
⚠ RY2501	CESK028-001	RELAY	1	
S2501	QSL4A13-C03Z	SWITCH	1	
TP-G,XR	CM42818-001	TEST POINT	2	
VR2501	QVP0055-502Z	V.RESISTOR 500	1	
VR2502	QVP0055-503Z	V.RESISTOR 50K	1	
VR2504,05	QVP0055-103Z	V.RESISTOR 10K	2	
■ E4	FX-3065A	CRT P.C.BOARD	1	(RTL)
C3001	QEHQ1EM-228	E.CAPACITOR 25V 2200U	1	
C3002	NCB21HK-103X	C.CAPACITOR 50V 0.01U	1	
C3003	QEHR2CM-336Z	E.CAPACITOR 160V 33U	1	
C3004	NDC21HJ-471X	C.CAPACITOR 50V 470P	1	
C3005	QFP32GK-563	P.CAPACITOR 400V 0.056U	1	
C3006	NCB21HK-103X	C.CAPACITOR 50V 0.01U	1	
C3008	QCZ0324-102	C.CAPACITOR 1000P	1	
C3009	QETN1CM-107Z	E.CAPACITOR 16V 100U	1	
⚠ C3010	QETM2EM-336	E.CAPACITOR 250V 33U	1	
C3011	QEHR2CM-336Z	E.CAPACITOR 160V 33U	1	
C3012	QETN2EM-106Z	E.CAPACITOR 250V 10U	1	
C3013	QFV71HJ-154Z	P.CAPACITOR 50V 0.15U	1	
C3101	NDC21HJ-820X	C.CAPACITOR 50V 82P	1	
C3201	NDC21HJ-101X	C.CAPACITOR 50V 100P	1	
C3301	NDC21HJ-181X	C.CAPACITOR 50V 180P	1	
⚠ CN30E1	CE41507-001P	CONNECTOR	1	
CN30SC	QGZ0017C101Z	CONNECTOR	1	
D3001,02	MA111	DIODE	2	
⚠ D3003	1SS82	DIODE	1	
D3004,05	1SR124-400A	DIODE	2	
D3006	MA111	DIODE	1	
D3007	MA3051-M	DIODE	1	
D3008	RU2	DIODE	1	
⚠ D3009	1SS82	DIODE	1	
D3010,11	MA111	DIODE	2	
D3013	MA111	DIODE	1	
D3014	MA3110-M	DIODE	1	
D3015-17	MA111	DIODE	3	
D3101	MA111	DIODE	1	
D3103-05	MA111	DIODE	3	
D3201	MA111	DIODE	1	
D3203-05	MA111	DIODE	3	
D3301	MA111	DIODE	1	
D3303-05	MA111	DIODE	3	
IC3001	VPS13S	IC	1	
L3001	QQL01BK-102Z	COIL 1000UH	1	
L3002	QQL50AK-330Z	COIL 33UH	1	
Q3001	2SC1505/MLK/	TRANSISTOR	1	
Q3002	2SA965/0Y/	TRANSISTOR	1	
Q3003	2SC2235/0Y/	TRANSISTOR	1	
Q3004	2SC2229/Y/	TRANSISTOR	1	
Q3007	2SC2412K/QR/	TRANSISTOR	1	
Q3008	2SA1037AK/QR	TRANSISTOR	1	
Q3009	2SC2412K/QR/	TRANSISTOR	1	
Q3101	2SA1321	TRANSISTOR	1	
Q3201	2SA1321	TRANSISTOR	1	
Q3301	2SA1321	TRANSISTOR	1	
R3001	NRSA02J-103X	M.RESISTOR 1/10W 10K	1	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
R3002	NRSA02J-332X	M.RESISTOR 1/10W 3.3K	1	
R3003	NRSA02J-103X	M.RESISTOR 1/10W 10K	1	
R3004	NRSA02J-680X	M.RESISTOR 1/10W 68	1	
R3005	QRL029J-152	M.RESISTOR 2W 1.5K	1	
R3006	QRL029J-182	M.RESISTOR 2W 1.8K	1	
R3007	QRK126J-474X	C.RESISTOR 1/2W 470K	1	
⚠ R3008	QRZ9017-471	F.RESISTOR 470	1	
⚠ R3009	QRK126J-223X	C.RESISTOR 1/2W 22K	1	
R3011	NRSA02J-103X	M.RESISTOR 1/10W 10K	1	
R3012	QRK126J-152X	C.RESISTOR 1/2W 1.5K	1	
⚠ R3013,14	QRZ9011-100	F.RESISTOR 10	2	
R3017	NRSA02J-273X	M.RESISTOR 1/10W 27K	1	
R3018	NRSA02J-104X	M.RESISTOR 1/10W 100K	1	
⚠ R3019	NRSA02J-0R0X	M.RESISTOR 1/10W 0	1	
⚠ R3021	QRK126J-102X	C.RESISTOR 1/2W 1K	1	
R3022	NRSA02J-122X	M.RESISTOR 1/10W 1.2K	1	
R3023	NRSA02J-103X	M.RESISTOR 1/10W 10K	1	
R3024	NRSA02J-332X	M.RESISTOR 1/10W 3.3K	1	
R3025	NRSA02J-103X	M.RESISTOR 1/10W 10K	1	
R3026	NRSA02J-152X	M.RESISTOR 1/10W 1.5K	1	
R3027	NRSA02J-153X	M.RESISTOR 1/10W 15K	1	
R3028	NRSA02J-152X	M.RESISTOR 1/10W 1.5K	1	
R3029	QRK126J-473X	C.RESISTOR 1/2 47K	1	
R3101	NRSA02J-101X	M.RESISTOR 1/10W 100	1	
⚠ R3102	QRK126J-331X	C.RESISTOR 1/2W 330	1	
R3103	NRSA02J-680X	M.RESISTOR 1/10W 68	1	
R3104	NRSA02J-101X	M.RESISTOR 1/10W 100	1	
⚠ R3106	NRSA02J-0R0X	M.RESISTOR 1/10W 0	1	
R3108	NRSA02J-560X	M.RESISTOR 1/10W 56	1	
R3109	QRL039J-472	M.RESISTOR 3W 4.7K	1	
⚠ R3110	QRZ9017-471	F.RESISTOR 470	1	
R3201	NRSA02J-101X	M.RESISTOR 1/10W 100	1	
⚠ R3202	QRK126J-331X	C.RESISTOR 1/2W 330	1	
R3203	NRSA02J-270X	M.RESISTOR 1/10W 27	1	
R3204	NRSA02J-101X	M.RESISTOR 1/10W 100	1	
⚠ R3206	NRSA02J-0R0X	M.RESISTOR 1/10W 0	1	
R3208	NRSA02J-560X	M.RESISTOR 1/10W 56	1	
R3209	QRL039J-472	M.RESISTOR 3W 4.7K	1	
⚠ R3210	QRZ9017-471	F.RESISTOR 470	1	
R3301	NRSA02J-101X	M.RESISTOR 1/10W 100	1	
⚠ R3302	QRK126J-331X	C.RESISTOR 1/2W 330	1	
R3303,04	NRSA02J-101X	M.RESISTOR 1/10W 100	2	
⚠ R3306	NRSA02J-0R0X	M.RESISTOR 1/10W 0	1	
R3308	NRSA02J-560X	M.RESISTOR 1/10W 56	1	
R3309	QRL039J-472	M.RESISTOR 3W 4.7K	1	
⚠ R3310	QRZ9017-471	F.RESISTOR 470	1	
SG3001	CE42447-242	SPARK GAP	1	
SG3101	QAF0006-201	SPARK GAP	1	
SG3201	QAF0006-201	SPARK GAP	1	
SG3301	QAF0006-201	SPARK GAP	1	
⚠ SK3001	CE42670-002	DISPLAY SOCKET	1	
TP-GND	CM42818-001	TEST POINT	1	
TP-47B	CM42818-001	TEST POINT	1	
TP-47G	CM42818-001	TEST POINT	1	
TP-47R	CM42818-001	TEST POINT	1	
		MISCELLANEOUS		
	QYSPSPD3010Z	SCREW	1	
■ E5	FX-4073A	FRONT CONTROL P.C.BOARD	1	(RTL)
C4101	NEH71CM-476X	E.CAPACITOR 16V 47U	1	
C4102	NCF21HZ-103X	C.CAPACITOR 50V 0.01U	1	
D4101-19	MA111	DIODE	19	
D4120	GL3ED8	LED	1	

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Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
IC4101	JLC1562BF	IC	1	
Q4101	2SA1037AK/QR	TRANSISTOR	1	
Q4102-05	2SC2412K/QR/	TRANSISTOR	4	
Q4106-11	2SA1037AK/QR	TRANSISTOR	6	
Q4112-14	2SC2412K/QR/	TRANSISTOR	3	
Q4120	2SC2412K/QR/	TRANSISTOR	1	
R4101	NRSA02J-391X	M.RESISTOR 1/10W 390	1	
R4102	NRSA02J-470X	M.RESISTOR 1/10W 47	1	
R4103	NRSA02J-391X	M.RESISTOR 1/10W 390	1	
R4104	NRSA02J-103X	M.RESISTOR 1/10W 10K	1	
R4105	NRSA02J-391X	M.RESISTOR 1/10W 390	1	
R4106	NRSA02J-103X	M.RESISTOR 1/10W 10K	1	
R4107	NRSA02J-391X	M.RESISTOR 1/10W 390	1	
R4108	NRSA02J-103X	M.RESISTOR 1/10W 10K	1	
R4109	NRSA02J-391X	M.RESISTOR 1/10W 390	1	
R4110	NRSA02J-103X	M.RESISTOR 1/10W 10K	1	
R4111	NRSA02J-391X	M.RESISTOR 1/10W 390	1	
R4112	NRSA02J-103X	M.RESISTOR 1/10W 10K	1	
R4113	NRSA02J-391X	M.RESISTOR 1/10W 390	1	
R4114	NRSA02J-103X	M.RESISTOR 1/10W 10K	1	
R4119	NRSA02J-391X	M.RESISTOR 1/10W 390	1	
R4120	NRSA02J-103X	M.RESISTOR 1/10W 10K	1	
R4121	NRSA02J-391X	M.RESISTOR 1/10W 390	1	
R4122	NRSA02J-103X	M.RESISTOR 1/10W 10K	1	
R4123	NRSA02J-391X	M.RESISTOR 1/10W 390	1	
R4124	NRSA02J-103X	M.RESISTOR 1/10W 10K	1	
R4125	NRSA02J-391X	M.RESISTOR 1/10W 390	1	
R4126	NRSA02J-103X	M.RESISTOR 1/10W 10K	1	
R4127	NRSA02J-391X	M.RESISTOR 1/10W 390	1	
R4128	NRSA02J-103X	M.RESISTOR 1/10W 10K	1	
R4129	NRSA02J-391X	M.RESISTOR 1/10W 390	1	
R4130	NRSA02J-103X	M.RESISTOR 1/10W 10K	1	
R4131	NRSA02J-391X	M.RESISTOR 1/10W 390	1	
R4132-42	NRSA02J-103X	M.RESISTOR 1/10W 10K	11	
R4150	NRSA02J-123X	M.RESISTOR 1/10W 12K	1	
⚠ R4151,52	NRSA02J-102X	M.RESISTOR 1/10W 1K	2	
S4101	QSW0619-003Z	SWITCH	1	
S4102-11	QSW0889-001	SWITCH	10	
S4112	QSW0619-003Z	SWITCH	1	
S4113-15	QSW0889-001	SWITCH	3	
S4116-19	QSW0619-003Z	SWITCH	4	
		MISCELLANEOUS		
	LC40656-001A	SPACER	1	
■ E6	FX-5023A	FRONT VR P.C.BOARD	1	(RTL)
C5101	QETN1CM-107Z	E.CAPACITOR 16V 100U	1	
C5102	NCF21HZ-103X	C.CAPACITOR 50V 0.01U	1	
CN500A	QGA2501F1-06	CONNECTOR	1	
D5101-04	MA3056-M	DIODE	4	
R5101-04	NRSA02J-333X	M.RESISTOR 1/10W 33K	4	
VR5101-04	QVQ0286-B14	V.RESISTOR	4	
■ E7	FX-6081A	MOTHER P.C.BOARD	1	(RTL)

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
C6101	QETN1CM-107Z	E.CAPACITOR 16V 100U	1	
C6102	NCF21HZ-103X	C.CAPACITOR 50V 0.01U	1	
C6103	QETN1CM-107Z	E.CAPACITOR 16V 100U	1	
C6104	NCF21HZ-103X	C.CAPACITOR 50V 0.01U	1	
C6105-18	QETN1EM-476Z	E.CAPACITOR 25V 47U	14	
C6119	QETN1CM-107Z	E.CAPACITOR 16V 100U	1	
C6120	NCF21HZ-103X	C.CAPACITOR 50V 0.01U	1	
C6121-26	QETN1HM-106Z	E.CAPACITOR 50V 10U	6	
C6127	QETN1EM-476Z	E.CAPACITOR 25V 47U	1	
C6128-33	QETN1HM-106Z	E.CAPACITOR 50V 10U	6	
C6137	QETN1CM-107Z	E.CAPACITOR 16V 100U	1	
C6138	NCF21HZ-103X	C.CAPACITOR 50V 0.01U	1	
C6139-43	QETN1EM-476Z	E.CAPACITOR 25V 47U	5	
C6145-47	NDC21HJ-100X	C.CAPACITOR 50V 10U	3	
C6201	QETN1EM-476Z	E.CAPACITOR 25V 47U	1	
C6202	NCF21HZ-104X	C.CAPACITOR 50V 0.1U	1	
C6203	QEHQ1EM-228	E.CAPACITOR 25V 2200U	1	
C6204	QETN1EM-476Z	E.CAPACITOR 25V 47U	1	
C6205	NCF21HZ-104X	C.CAPACITOR 50V 0.1U	1	
C6206	QETN1CM-107Z	E.CAPACITOR 16V 100U	1	
C6207,08	NCF21HZ-224X	C.CAPACITOR 50V 0.22U	2	
IC6101,02	TC4052BF	IC	2	
IC6103	JLC1562BF	IC	1	
IC6104,05	M52055FP	IC	2	
IC6106-09	NJM2234MA	IC	4	
IC6110	TC4052BF	IC	1	
IC6111	M52055FP	IC	1	
IC6201	BA12FP	IC	1	
IC6202	BA05FP	IC	1	
Q6101-03	2SC2412K/QR/	TRANSISTOR	3	
⚠ R6101-09	NRSA02J-223X	M.RESISTOR 1/10W 22K	9	
R6113	NRSA02J-103X	M.RESISTOR 1/10W 10K	1	
R6117	NRSA02J-103X	M.RESISTOR 1/10W 10K	1	
R6118	NRSA02J-183X	M.RESISTOR 1/10W 18K	1	
R6119	NRSA02J-333X	M.RESISTOR 1/10W 33K	1	
⚠ R6120	NRSA02J-102X	M.RESISTOR 1/10W 1K	1	
R6121	NRSA02J-183X	M.RESISTOR 1/10W 18K	1	
R6122	NRSA02J-333X	M.RESISTOR 1/10W 33K	1	
R6123	NRSA02J-332X	M.RESISTOR 1/10W 3.3K	1	
R6124	NRSA02J-183X	M.RESISTOR 1/10W 18K	1	
R6125	NRSA02J-333X	M.RESISTOR 1/10W 33K	1	
R6126	NRSA02J-332X	M.RESISTOR 1/10W 3.3K	1	
R6133	NRSA02J-103X	M.RESISTOR 1/10W 10K	1	
R6150-67	NRSA02J-103X	M.RESISTOR 1/10W 10K	18	
⚠ R6168	NRSA02J-0R0X	M.RESISTOR 1/10W 0	1	
■ E8	FX-7027A	TALLY P.C.BOARD	1	(RTL)
D7101-10	SML-211UT	LED	10	
R7101-05	NRSA02J-181X	M.RESISTOR 1/10W 180	5	
■ E9	FX-8027A	REMOTE P.C.BOARD	1	(RTL)
C8101,02	NEH71HM-105X	E.CAPACITOR 50V 1U	2	
C8103	NEH70JM-107X	E.CAPACITOR 6.3V 100U	1	
C8104-06	NEH71HM-105X	E.CAPACITOR 50V 1U	3	
D8101-16	MA3120-M	DIODE	16	
D8117-44	MA111	DIODE	28	
IC8101	ADM237LJR	IC	1	

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Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
IC8102,03	JLC1562BF	IC	2	
R8101-08	NRSA02J-151X	M.RESISTOR 1/10W 150	8	
R8109-12	NRZ0040-101X	COMBI.R-R	4	
R8123-40	NRSA02J-103X	M.RESISTOR 1/10W 10K	18	
■ E10	FX-M025A	SUB DEF P.C.BOARD	1	(RTL)
C0001	NDC21HJ-271X	C.CAPACITOR 50V 270P	1	
C0002	NCB21HK-104X	C.CAPACITOR 50V 0.1U	1	
C0003	QETN1AM-227Z	E.CAPACITOR 10V 220U	1	
C0004	NDC21HJ-102X	C.CAPACITOR 50V 1000P	1	
C0010	QETN1EM-476Z	E.CAPACITOR 25V 47U	1	
C0011,12	NCB21HK-104X	C.CAPACITOR 50V 0.1U	2	
C0013	QETN1EM-476Z	E.CAPACITOR 25V 47U	1	
C0014	NCB21HK-104X	C.CAPACITOR 50V 0.1U	1	
C0015	QETN1EM-476Z	E.CAPACITOR 25V 47U	1	
C0020	QETN1CM-477Z	E.CAPACITOR 16V 470U	1	
C0401	QFV71HJ-184Z	P.CAPACITOR 50V 0.18U	1	
C0402	NCB11CK-105X	C.CAPACITOR 16V 1U	1	
C0403	QENC1CM-336Z	E.CAPACITOR 16V 33U	1	
C0404	QETN1EM-476Z	E.CAPACITOR 25V 47U	1	
C0405	QENC1AM-107Z	E.CAPACITOR 10V 100U	1	
C0406	NDC21HJ-151X	C.CAPACITOR 50V 150P	1	
C0407	QENC1CM-106Z	E.CAPACITOR 16V 10U	1	
C0408	QETN1HM-106Z	E.CAPACITOR 50V 10U	1	
C0409	NCB21HK-104X	C.CAPACITOR 50V 0.1U	1	
C0410	QETN1EM-476Z	E.CAPACITOR 25V 47U	1	
C0503	NCB21EK-104X	C.CAPACITOR 25V 0.1U	1	
C0504	NCB21HK-104X	C.CAPACITOR 50V 0.1U	1	
C0505	NDC21HJ-102X	C.CAPACITOR 50V 1000P	1	
C0506	QETN1CM-477Z	E.CAPACITOR 16V 470U	1	
C0508	NCB21HK-682X	C.CAPACITOR 50V 6800P	1	
C0509	QETN1EM-476Z	E.CAPACITOR 25V 47U	1	
C0510	QETN1HM-106Z	E.CAPACITOR 50V 10U	1	
C0511	QETN1EM-476Z	E.CAPACITOR 25V 47U	1	
C0512	NCB21HK-104X	C.CAPACITOR 50V 0.1U	1	
C0513	QETN1HM-106Z	E.CAPACITOR 50V 10U	1	
C0514	QETN1HM-105Z	E.CAPACITOR 50V 1U	1	
C0515	NDC21HJ-271X	C.CAPACITOR 50V 270P	1	
C0516	QETN1HM-225Z	E.CAPACITOR 50V 2.2U	1	
C0521	QENC1HM-106Z	E.CAPACITOR 50V 10U	1	
C0524	NCB21HK-472X	C.CAPACITOR 50V 4700P	1	
C0525	QETN1HM-226Z	E.CAPACITOR 50V 22U	1	
C0526	QETN1EM-476Z	E.CAPACITOR 25V 47U	1	
C0527,28	NCB21HK-103X	C.CAPACITOR 50V 0.01U	2	
C0529	QETN1HM-475Z	E.CAPACITOR 50V 4.7U	1	
C0530	NCB21HK-473X	C.CAPACITOR 50V 0.047U	1	
C0531	NDC21HJ-102X	C.CAPACITOR 50V 1000P	1	
C0532	NDC21HJ-101X	C.CAPACITOR 50V 100U	1	
C0533	NCB21HK-392X	C.CAPACITOR 50V 3900P	1	
C0534	QETN1CM-107Z	E.CAPACITOR 16V 100U	1	
C0535,36	NCB21HK-332X	C.CAPACITOR 50V 3300P	2	
C0537	QETN1HM-106Z	E.CAPACITOR 50V 10U	1	
C0541	NCB21HK-153X	C.CAPACITOR 50V 0.015U	1	
C0542	QENC1CM-476Z	E.CAPACITOR 16V 47U	1	
C0543	NCB21HK-103X	C.CAPACITOR 50V 0.01U	1	
C0554	NCB21HK-153X	C.CAPACITOR 50V 0.015U	1	
C0556	NDC21HJ-152X	C.CAPACITOR 50V 1500P	1	
CN0001-03	CHB105W-15RJ	CONNECTOR	3	
D0401-03	MA111	DIODE	3	
D0501	MA3051-M	DIODE	1	
D0503	MA111	DIODE	1	
D0505-09	MA111	DIODE	5	
IC0001	UPC1884CT	IC	1	
IC0002	FA5301BN	IC	1	
IC0003-06	UPC4558G	IC	4	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
L0001	NQL02BJ-101X	COIL 100UH	1	
Q0401	2SC2412K/QR/	DIODE	1	
Q0402,03	DTC124EK	DIODE	2	
Q0503	2SC2412K/QR/	DIODE	1	
Q0504	DTC124EK	DIODE	1	
Q0505	2SA1037AK/QR	DIODE	1	
Q0506	2SC2412K/QR/	DIODE	1	
Q0507	2SA1037AK/QR	DIODE	1	
Q0510	2SC2412K/QR/	DIODE	1	
R0001	NRSA02J-473X	M.RESISTOR 1/10W 47K	1	
⚠ R0002,03	NRSA02J-220X	M.RESISTOR 1/10W 22	2	
R0004	NRSA02J-472X	M.RESISTOR 1/10W 4.7K	1	
⚠ R0006	NRSA02J-0R0X	M.RESISTOR 1/10W 0	1	
⚠ R0007,08	NRSA02J-102X	M.RESISTOR 1/10W 1K	2	
⚠ R0010-14	NRSA02J-182X	M.RESISTOR 1/10W 1.8K	5	
R0401	NRSA02J-103X	M.RESISTOR 1/10W 10K	1	
R0402	NRSA02D-822X	M.RESISTOR 1/10W 8.2K	1	
R0404	NRSA02D-224X	M.RESISTOR 1/10W 220K	1	
R0405	NRSA02D-562X	M.RESISTOR 1/10W 5.6K	1	
R0406	NRSA02J-103X	M.RESISTOR 1/10W 10K	1	
R0407	NRSA02D-682X	M.RESISTOR 1/10W 6.8K	1	
R0408	NRSA02D-123X	M.RESISTOR 1/10W 12K	1	
R0409	NRSA02D-183X	M.RESISTOR 1/10W 18K	1	
⚠ R0410	NRSA02J-0R0X	M.RESISTOR 1/10W 0	1	
R0414	NRSA02D-104X	M.RESISTOR 1/10W 100K	1	
⚠ R0415	NRSA02J-0R0X	M.RESISTOR 1/10W 0	1	
R0416	NRSA02D-222X	M.RESISTOR 1/10W 2.2K	1	
R0417	NRSA02D-682X	M.RESISTOR 1/10W 6.8K	1	
R0418	NRSA02J-101X	M.RESISTOR 1/10W 100	1	
R0419	NRSA02J-474X	M.RESISTOR 1/10W 470K	1	
R0420,21	NRSA02J-473X	M.RESISTOR 1/10W 47K	2	
R0503	NRSA02J-822X	M.RESISTOR 1/10W 8.2K	1	
R0505	NRSA02D-822X	M.RESISTOR 1/10W 8.2K	1	
⚠ R0506	NRSA02J-392X	M.RESISTOR 1/10W 3.9K	1	
R0507	NRSA02J-224X	M.RESISTOR 1/10W 220K	1	
⚠ R0508	NRSA02J-0R0X	M.RESISTOR 1/10W 0	1	
R0509	NRSA02J-222X	M.RESISTOR 1/10W 2.2K	1	
R0512	NRSA02J-472X	M.RESISTOR 1/10W 4.7K	1	
R0513	NRSA02J-103X	M.RESISTOR 1/10W 10K	1	
R0514,15	NRSA02J-472X	M.RESISTOR 1/10W 4.7K	2	
R0516	NRSA02J-100X	M.RESISTOR 1/10W 10	1	
R0519	NRSA02J-123X	M.RESISTOR 1/10W 12K	1	
⚠ R0520	NRSA02J-393X	M.RESISTOR 1/10W 39K	1	
R0521	NRSA02J-273X	M.RESISTOR 1/10W 27K	1	
⚠ R0522	NRSA02J-150X	M.RESISTOR 1/10W 15	1	
⚠ R0523	NRSA02J-682X	M.RESISTOR 1/10W 6.8K	1	
R0524	NRSA02J-472X	M.RESISTOR 1/10W 4.7K	1	
⚠ R0525	NRSA02J-102X	M.RESISTOR 1/10W 1K	1	
R0527,28	NRSA02J-104X	M.RESISTOR 1/10W 100K	2	
R0529	NRSA02J-823X	M.RESISTOR 1/10W 82K	1	
R0530	NRSA02J-273X	M.RESISTOR 1/10W 27K	1	
R0533	NRSA02J-104X	M.RESISTOR 1/10W 100K	1	
R0534	NRSA02J-473X	M.RESISTOR 1/10W 47K	1	
R0535	NRSA02J-104X	M.RESISTOR 1/10W 100K	1	
⚠ R0536	NRSA02J-393X	M.RESISTOR 1/10W 39K	1	
⚠ R0537	NRSA02J-182X	M.RESISTOR 1/10W 1.8K	1	
R0538	NRSA02J-123X	M.RESISTOR 1/10W 12K	1	
R0539	NRSA02J-333X	M.RESISTOR 1/10W 33K	1	
R0540	NRSA02J-562X	M.RESISTOR 1/10W 5.6K	1	
R0541	NRSA02J-333X	M.RESISTOR 1/10W 33K	1	
R0542	NRSA02J-153X	M.RESISTOR 1/10W 15K	1	
R0543,44	NRSA02J-472X	M.RESISTOR 1/10W 4.7K	2	
R0545	NRSA02J-103X	M.RESISTOR 1/10W 10K	1	
R0546	NRSA02J-472X	M.RESISTOR 1/10W 4.7K	1	
R0547	NRSA02J-222X	M.RESISTOR 1/10W 2.2K	1	
R0548	NRSA02J-104X	M.RESISTOR 1/10W 100K	1	
R0549	NRSA02J-121X	M.RESISTOR 1/10W 120	1	
⚠ R0550	NRSA02J-102X	M.RESISTOR 1/10W 1K	1	
R0552	NRSA02J-472X	M.RESISTOR 1/10W 4.7K	1	
R0553-55	NRSA02J-103X	M.RESISTOR 1/10W 10K	3	
R0556	NRSA02D-822X	M.RESISTOR 1/10W 8.2K	1	
⚠ R0557	NRSA02J-102X	M.RESISTOR 1/10W 1K	1	

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Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
R0558,59	NRSA02J-103X	M.RESISTOR 1/10W 10K	2	
SV	LC40030-002A	SHEET	1	
X0501	CSB500E	CRYSTAL OSCILLATOR	1	
■ E11	FX-M026A	HV CONTROL P.C.BOARD	1	(RTL)
C0501,02	NCB21HK-104X	C.CAPACITOR 50V 0.1U	2	
C0503	NDC21HJ-681X	C.CAPACITOR 50V 680P	1	
C0504	NDC21HJ-102X	C.CAPACITOR 50V 1000P	1	
C0505	NCB21HK-103X	C.CAPACITOR 50V 0.01U	1	
C0506	NCB21HK-272X	C.CAPACITOR 50V 2700P	1	
C0507,08	NDC21HJ-471X	C.CAPACITOR 50V 470P	2	
C0509	NCB21HK-104X	C.CAPACITOR 50V 0.1U	1	
C0511	NDC21HJ-560X	C.CAPACITOR 50V 56P	1	
CN0004	CHB105W-15RJ	CONNECTOR	1	
D0501	MA3120-M	DIODE	1	
D0502	MA3056-M	DIODE	1	
D0503-08	MA111	DIODE	6	
IC0501	TLC555ID	IC	1	
IC0502	BA15218F	IC	1	
IC0503	BA10339FV	IC	1	
Q0501	2SC2412K/QR/	TRANSISTOR	1	
Q0502,03	2SA1037AK/QR	TRANSISTOR	2	
R0501	NRSA02J-680X	M.RESISTOR 1/10W 68	1	
R0502	NRSA02J-101X	M.RESISTOR 1/10W 100	1	
R0503	NRSA02J-681X	M.RESISTOR 1/10W 680	1	
R0504	NRSA02J-332X	M.RESISTOR 1/10W 3.3K	1	
R0505	NRSA02J-103X	M.RESISTOR 1/10W 10K	1	
R0506	NRSA02J-473X	M.RESISTOR 1/10W 47K	1	
R0507	NRSA02F-222X	M.RESISTOR 1/10W 2.2K	1	
⚠ R0508	NRSA02J-102X	M.RESISTOR 1/10W 1K	1	
R0509,10	NRSA02J-333X	M.RESISTOR 1/10W 33K	2	
R0511	NRSA02F-912X	M.RESISTOR 1/10W 9.1K	1	
R0512,13	NRSA02J-222X	M.RESISTOR 1/10W 2.2K	2	
R0514	NRSA02J-272X	M.RESISTOR 1/10W 2.7K	1	
R0515	NRSA02J-331X	M.RESISTOR 1/10W 330	1	
R0516	NRSA02F-912X	M.RESISTOR 1/10W 9.1K	1	
R0517	NRSA02J-103X	M.RESISTOR 1/10W 10K	1	
R0518	NRSA02J-123X	M.RESISTOR 1/10W 12K	1	
R0519	NRSA02J-272X	M.RESISTOR 1/10W 2.7K	1	
R0520	NRSA02J-152X	M.RESISTOR 1/10W 1.5K	1	
⚠ R0521	NRSA02J-392X	M.RESISTOR 1/10W 3.9K	1	
R0522	NRSA02J-152X	M.RESISTOR 1/10W 1.5K	1	
⚠ R0523,24	NRSA02J-392X	M.RESISTOR 1/10W 3.9K	2	
R0525	NRSA02J-104X	M.RESISTOR 1/10W 100K	1	
R0530	NRSA02J-680X	M.RESISTOR 1/10W 68	1	
R0532	NRSA02J-103X	M.RESISTOR 1/10W 10K	1	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks

ELECTRICAL REPLACEMNT PARTS LIST(BT-YA701P)

Components identified with the mark ⚠ have the special characterisitics for safety.
When replacing any of these components, use onlly the same type.

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
■	FX-M027A	VIDEO P.C.BOARD	1	(RTL)
				(RTL)
■	FX-MA027A	VIDEO P.C.BOARD	1	(RTL)
C0101	QETN1EM-476Z	E.CAPACITOR 25V 47U	1	
C0102	QETN1HM-106Z	E.CAPACITOR 50V 10U	1	
C0104	QFV71HJ-104Z	P.CAPACITOR 50V 0.1U	1	
C0105	QENC1CM-336Z	E.CAPACITOR 16V 33U	1	
C0106,07	QFV71HJ-104Z	P.CAPACITOR 50V 0.1U	2	
C0108	QETN1EM-476Z	E.CAPACITOR 25V 47U	1	
C0109	QENC1CM-336Z	E.CAPACITOR 16V 33U	1	
C0113	QFV71HJ-104Z	P.CAPACITOR 50V 0.1U	1	
C0114	QENC1CM-336Z	E.CAPACITOR 16V 33U	1	
C0120	QETN1EM-476Z	E.CAPACITOR 25V 47U	1	
C0122	QFV71HJ-104Z	P.CAPACITOR 50V 0.1U	1	
C0124	QFV71HJ-104Z	P.CAPACITOR 50V 0.1U	1	
C0126	QFV71HJ-104Z	P.CAPACITOR 50V 0.1U	1	
C0128	QFLC1HJ-103Z	P.CAPACITOR 50V 0.01U	1	
C0129	QETN1EM-476Z	E.CAPACITOR 25V 47U	1	
C0132	QETN1HM-105Z	E.CAPACITOR 50V 1U	1	
C0135	QENC1HM-105Z	E.CAPACITOR 50V 1U	1	
C0138	QETN1HM-105Z	E.CAPACITOR 50V 1U	1	
C0141	QENC1HM-105Z	E.CAPACITOR 50V 1U	1	
C0142	QETN1EM-476Z	E.CAPACITOR 25V 47U	1	
C0143,44	QFV71HJ-104Z	E.CAPACITOR 50V 0.1U	2	
C0150	QETN1HM-106Z	E.CAPACITOR 50V 10U	1	
C0151	QFV71HJ-104Z	P.CAPACITOR 50V 0.1U	1	
C0152	QEHQ1EM-228	E.CAPACITOR 25V 2200U	1	
C0153	QETN1HM-106Z	E.CAPACITOR 50V 10U	1	
C0154	QFV71HJ-104Z	P.CAPACITOR 50V 0.1U	1	
C0155	QETN1CM-107Z	E.CAPACITOR 16V 100U	1	
C0156,57	QFV71HJ-224Z	P.CAPACITOR 50V 0.22U	2	
C0158	QETN1HM-106Z	E.CAPACITOR 50V 10U	1	
C0202	QFLC1HJ-103Z	P.CAPACITOR 50V 0.01U	1	
C0203	QFLC1HJ-102Z	P.CAPACITOR 50V 1000P	1	
C0204	QETN1HM-475Z	E.CAPACITOR 50V 4.7U	1	
C0205	QFLC1HJ-103Z	P.CAPACITOR 50V 0.01U	1	
C0207	QFLC1HJ-103Z	P.CAPACITOR 50V 0.01U	1	
C0208	QEHR0JM-477Z	E.CAPACITOR 6.3V 470U	1	
C0210	QFLC1HJ-102Z	P.CAPACITOR 50V 1000P	1	
C0211	QFLC1HJ-103Z	P.CAPACITOR 50V 0.01U	1	
C0212	QETN1EM-476Z	E.CAPACITOR 25V 47U	1	
C0213	QETN1HM-106Z	E.CAPACITOR 50V 10U	1	
C0214,15	QENC1CM-336Z	E.CAPACITOR 16V 33U	2	
C0216	QFLC1HJ-103Z	P.CAPACITOR 50V 0.01U	1	
C0217	QETN1HM-106Z	E.CAPACITOR 50V 10U	1	
C0218	QENC1CM-336Z	E.CAPACITOR 16V 33U	1	
C0219,20	QFV71HJ-104Z	P.CAPACITOR 50V 0.1U	2	
C0221	QFLC1HJ-103Z	P.CAPACITOR 50V 0.01U	1	
C0222	QETN1EM-476Z	E.CAPACITOR 25V 47U	1	
C0223	QFLC1HJ-103Z	P.CAPACITOR 50V 0.01U	1	
C0224	QFV71HJ-104Z	P.CAPACITOR 50V 0.1U	1	
C0225	QENC1CM-336Z	E.CAPACITOR 16V 33U	1	
C0301	QFLC1HJ-103Z	P.CAPACITOR 50V 0.01U	1	
C0304	QFLC1HJ-103Z	P.CAPACITOR 50V 0.01U	1	
C0306	QFLC1HJ-273Z	P.CAPACITOR 50V 0.027U	1	
C0307	QFLC1HJ-103Z	P.CAPACITOR 50V 0.01U	1	
C0308	QETN1HM-474Z	E.CAPACITOR 50V 0.47U	1	
C0309	QFV71HJ-104Z	P.CAPACITOR 50V 0.1U	1	
C0310	QETN1CM-107Z	E.CAPACITOR 16V 100U	1	
C0311,12	QFV71HJ-104Z	P.CAPACITOR 50V 0.1U	2	
C0313	QENC1EM-106Z	E.CAPACITOR 25V 10U	1	
C0314	QFLC1HJ-103Z	P.CAPACITOR 50V 0.01U	1	
C0315	QFV71HJ-104Z	P.CAPACITOR 50V 0.1U	1	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
C0327,28	QENC1EM-106Z	E.CAPACITOR 25V 10U	2	
⚠ D0101-08	1SS133	DIODE	8	
D0109,10	MTZJ12CTA	DIODE	2	
D0111	MTZJ5.1B	DIODE	1	
⚠ D0112,13	1SS133	DIODE	2	
⚠ D0201-03	1SS133	DIODE	3	
DL0201	CE42099-003	DELAY	1	
DL0301	CE41489-001	DELAY	1	
IC0101,02	NJM2234D	IC	2	
IC0103	BA12T	IC	1	
IC0104	BA05T	IC	1	
IC0201	NJM2240D	IC	1	
IC0202	SBX1745-01	IC	1	
IC0203	NJM2234D	IC	1	
IC0204	TC4053BP	IC	1	
IC0301	AN5625N	IC	1	
J0001,02	CEMB021-002	CONNECTOR	2	
J0003	QMD2B04-001	CONNECTOR	1	
J0004	CEMB021-002	CONNECTOR	1	
J0005	CEMN036-005	PIN JACK	1	
L0202	QQL244K-100Z	COIL 10UH	1	
L0203-05	QQL244K-4R7Z	COIL 4.7UH	3	
L0301	QQL244K-8R2Z	COIL 8.2UH	1	
L0302,03	QQL244K-820Z	COIL 82UH	2	
Q0101-03	2SC3311A	TRANSISTOR	3	
Q0104	2SA1309A-R	TRANSISTOR	1	
Q0105,06	2SC3311A	TRANSISTOR	2	
Q0110,11	2SC3311A	TRANSISTOR	2	
Q0112	2SA1309A-R	TRANSISTOR	1	
Q0113-15	2SC3311A	TRANSISTOR	3	
Q0116	2SA1309A-R	TRANSISTOR	1	
Q0117	2SC3311A	TRANSISTOR	1	
Q0120,21	2SC3311A	TRANSISTOR	2	
Q0123,24	2SC3311A	TRANSISTOR	2	
Q0203	2SC3311A	TRANSISTOR	1	
Q0205	DTC124ES	TRANSISTOR	1	
Q0206-08	2SC3311A	TRANSISTOR	3	
Q0209	DTC124ES	TRANSISTOR	1	
Q0301	DTC124ES	TRANSISTOR	1	
Q0302-05	2SC3311A	TRANSISTOR	4	
Q0307-09	DTC124ES	TRANSISTOR	3	
R0101,02	QRE141J-750Y	C.RESISOR 1/4W 75	2	
R0103	QRE141J-101Y	C.RESISOR 1/4W 100	1	
R0104,05	QRE141J-393Y	C.RESISOR 1/4W 39	2	
R0106	QRE141J-562Y	C.RESISOR 1/4W 5.6	1	
R0107	QRE141J-101Y	C.RESISOR 1/4W 100	1	
⚠ R0108	QRE141J-103Y	C.RESISOR 1/4W 10K	1	
R0109	QRE141J-101Y	C.RESISOR 1/4W 100	1	
R0110,11	QRE141J-393Y	C.RESISOR 1/4W 39K	2	
R0112	QRE141J-562Y	C.RESISOR 1/4W 5.6K	1	
R0113	QRE141J-101Y	C.RESISOR 1/4W 100	1	
R0114	QRE141J-393Y	C.RESISOR 1/4W 39K	1	
R0115	QRE141J-153Y	C.RESISOR 1/4W 15K	1	
R0116	QRE141J-391Y	C.RESISOR 1/4W 390	1	
R0117	QRE141J-221Y	C.RESISOR 1/4W 220	1	
R0118	QRE141J-101Y	C.RESISOR 1/4W 100	1	
R0119	QRE141J-271Y	C.RESISOR 1/4W 270	1	
R0120	QRE141J-391Y	C.RESISOR 1/4W 390	1	
R0121	QRE141J-182Y	C.RESISOR 1/4W 1.8K	1	
R0122	QRE141J-101Y	C.RESISOR 1/4W 100	1	
R0123	QRE141J-152Y	C.RESISOR 1/4W 1.5K	1	
R0124	QRE141J-101Y	C.RESISOR 1/4W 100	1	
⚠ R0125	QRE141J-681Y	C.RESISOR 1/4W 680	1	
R0130,31	QRE141J-750Y	C.RESISOR 1/4W 75	2	
R0132	QRE141J-101Y	C.RESISOR 1/4W 100	1	
R0133	QRE141J-393Y	C.RESISOR 1/4W 39	1	
R0134	QRE141J-183Y	C.RESISOR 1/4W 18	1	
R0135	QRE141J-562Y	C.RESISOR 1/4W 5.6	1	

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Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
R0136	QRE141J-101Y	C.RESISOR 1/4W 100	1	
R0137	QRE141J-391Y	C.RESISOR 1/4W 390	1	
R0138	QRE141J-221Y	C.RESISOR 1/4W 220	1	
R0139	QRE141J-101Y	C.RESISOR 1/4W 100	1	
R0140	QRE141J-271Y	C.RESISOR 1/4W 270	1	
R0141	QRE141J-391Y	C.RESISOR 1/4W 390	1	
R0142	QRE141J-182Y	C.RESISOR 1/4W 1.8K	1	
R0143	QRE141J-101Y	C.RESISOR 1/4W 100	1	
R0144	QRE141J-393Y	C.RESISOR 1/4W 39K	1	
R0145	QRE141J-183Y	C.RESISOR 1/4W 18K	1	
R0146	QRE141J-562Y	C.RESISOR 1/4W 5.6K	1	
R0147	QRE141J-101Y	C.RESISOR 1/4W 100	1	
R0148	QRE141J-391Y	C.RESISOR 1/4W 390	1	
R0149	QRE141J-221Y	C.RESISOR 1/4W 220	1	
R0151	QRE141J-271Y	C.RESISOR 1/4W 270	1	
R0152	QRE141J-391Y	C.RESISOR 1/4W 390	1	
R0153	QRE141J-182Y	C.RESISOR 1/4W 1.8K	1	
⚠ R0154	QRE141J-223Y	C.RESISOR 1/4W 22K	1	
R0155	QRE141J-273Y	C.RESISOR 1/4W 27K	1	
⚠ R0161	QRE141J-102Y	C.RESISOR 1/4W 1K	1	
R0162	QRE141J-563Y	C.RESISOR 1/4W 56K	1	
R0163	QRE141J-683Y	C.RESISOR 1/4W 68K	1	
R0164	QRE141J-682Y	C.RESISOR 1/4W 6.8K	1	
⚠ R0166	QRE141J-102Y	C.RESISOR 1/4W 1K	1	
R0167	QRE141J-563Y	C.RESISOR 1/4W 56K	1	
R0168	QRE141J-683Y	C.RESISOR 1/4W 68K	1	
R0169	QRE141J-682Y	C.RESISOR 1/4W 6.8K	1	
⚠ R0170	QRE141J-102Y	C.RESISOR 1/4W 1K	1	
R0171	QRE141J-0R0Y	C.RESISOR 1/4W 0	1	
R0173	QRE141J-101Y	C.RESISOR 1/4W 100	1	
R0174,75	QRE141J-393Y	C.RESISOR 1/4W 39	2	
R0176	QRE141J-562Y	C.RESISOR 1/4W 5.6K	1	
R0177	QRE141J-101Y	C.RESISOR 1/4W 100	1	
R0178,79	QRE141J-151Y	C.RESISOR 1/4W 150	2	
R0210	QRE141J-331Y	C.RESISOR 1/4W 330	1	
R0211	QRE141J-101Y	C.RESISOR 1/4W 100	1	
R0212	QRE141J-392Y	C.RESISOR 1/4W 3.9K	1	
R0214	QRE141J-271Y	C.RESISOR 1/4W 270	1	
R0216	QRE141J-273Y	C.RESISOR 1/4W 27K	1	
⚠ R0220	QRE141J-103Y	C.RESISOR 1/4W 10K	1	
R0221	QRE141J-393Y	C.RESISOR 1/4W 39K	1	
⚠ R0222	QRE141J-223Y	C.RESISOR 1/4W 22K	1	
R0224,25	QRE141J-821Y	C.RESISOR 1/4W 820	2	
⚠ R0226	QRE141J-102Y	C.RESISOR 1/4W 1K	1	
R0228	QRE141J-0R0Y	C.RESISOR 1/4W 0	1	
⚠ R0229,30	QRE141J-102Y	C.RESISOR 1/4W 1K	2	
R0231	QRE141J-391Y	C.RESISOR 1/4W 390	1	
R0232,33	QRE141J-562Y	C.RESISOR 1/4W 5.6K	2	
⚠ R0234	QRE141J-272Y	C.RESISOR 1/4W 2.7K	1	
⚠ R0235,36	QRE141J-103Y	C.RESISOR 1/4W 10K	2	
R0301,02	QRE141J-391Y	C.RESISOR 1/4W 390	2	
R0303	QRE141J-471Y	C.RESISOR 1/4W 470	1	
R0304	QRE141J-101Y	C.RESISOR 1/4W 100	1	
R0305	QRE141J-472Y	C.RESISOR 1/4W 4.7K	1	
⚠ R0306	QRE141J-272Y	C.RESISOR 1/4W 2.7K	1	
⚠ R0307	QRE141J-224Y	C.RESISOR 1/4W 220	1	
⚠ R0309	QRE141J-103Y	C.RESISOR 1/4W 10K	1	
⚠ R0310	QRE141J-223Y	C.RESISOR 1/4W 22K	1	
R0311	QRE141J-684Y	C.RESISOR 1/4W 680K	1	
⚠ R0312	QRE141J-103Y	C.RESISOR 1/4W 10K	1	
R0313	QRE141J-101Y	C.RESISOR 1/4W 100	1	
R0314	QRE141J-222Y	C.RESISOR 1/4W 2.2K	1	
⚠ R0315	QRE141J-681Y	C.RESISOR 1/4W 680	1	
R0316	QRE141J-101Y	C.RESISOR 1/4W 100	1	
R0319	QRE141J-682Y	C.RESISOR 1/4W 6.8K	1	
⚠ R0320	QRE141J-332Y	C.RESISOR 1/4W 3.3K	1	
⚠ R0321,22	QRE141J-103Y	C.RESISOR 1/4W 10K	2	
⚠ R0330	QRE141J-272Y	C.RESISOR 1/4W 2.7K	1	
R0331	QRE141J-561Y	C.RESISOR 1/4W 560K	1	
⚠ R0332,33	QRE141J-102Y	C.RESISOR 1/4W 1K	2	
R0334	QRE141J-152Y	C.RESISOR 1/4W 1.5K	1	
⚠ R0335,36	QRE141J-332Y	C.RESISOR 1/4W 3.3K	2	
⚠ R0337	QRE141J-272Y	C.RESISOR 1/4W 2.7K	1	
R0338	QRE141J-821Y	C.RESISOR 1/4W 820	1	
⚠ R0339,40	QRE141J-102Y	C.RESISOR 1/4W 1K	2	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
R0341	QRE141J-152Y	C.RESISOR 1/4W 1.5K	1	
⚠ R0342,43	QRE141J-332Y	C.RESISOR 1/4W 3.3K	2	
R0344-47	QRE141J-683Y	C.RESISOR 1/4W 68K	4	
S0301	QSS1A22-C04	SWITCH	1	
T0301	QQR1018-001	IF	1	
TC0303,04	QAT7003-450	TRIMMER 45P	2	
VR0101,02	QVP0053-201Z	V.RESISTOR 200	2	
VR0301	QVP0053-202Z	V.RESISTOR 2K	1	
VR0302,03	QVP0053-103Z	V.RESISTOR 10K	2	
VR0304	QVP0053-201Z	V.RESISTOR 200	1	
VR0305	QVP0053-103Z	V.RESISTOR 10K	1	
X0301	CE40668-001Z	CRYSTAL OSCILLATOR	1	
X0302	CE40749-001Z	CRYSTAL OSCILLATOR	1	

ELECTRICAL REPLACEMNT PARTS LIST(BT-YA702P)

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Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
■	FX-M028A	COMPO P.C.BOARD	1	(RTL)
■	FX-M028A	COMPO P.C.BOARD	1	(RTL)
C0101-03	QETN1EM-476Z	E.CAPACITOR 25V 47U	1	
C0104-05	QETN1HM-106Z	E.CAPACITOR 50V 10U	1	
C0107	QETN1CM-107Z	E.CAPACITOR 16V 100U	1	
C0109	QETN1CM-107Z	E.CAPACITOR 16V 100U	1	
C0111	QETN1CM-107Z	E.CAPACITOR 16V 100U	1	
C0114	QFV71HJ-104Z	P.CAPACITOR 50V 0.1U	1	
C0115	QETN1CM-107Z	E.CAPACITOR 16V 100U	1	
C0116-19	QFV71HJ-104Z	P.CAPACITOR 50V 0.1U	1	
C0120	QETN1EM-476Z	E.CAPACITOR 25V 47U	1	
C0121	QFV71HJ-104Z	P.CAPACITOR 50V 0.1U	1	
C0122	QETN1CM-107Z	E.CAPACITOR 16V 100U	1	
C0123	QFV71HJ-224Z	P.CAPACITOR 50V 0.22U	1	
C0203	QETN1HM-105Z	E.CAPACITOR 50V 1U	1	
C0206	QFV71HJ-104Z	P.CAPACITOR 50V 0.1U	1	
C0207	QETN1CM-107Z	E.CAPACITOR 16V 100U	1	
⚠ D0101-10	1SS133	DIODE	10	
D0201	MTZJ12CTA	DIODE	1	
IC0101	BA12T	IC	1	
J0001-05	CEMB021-002	CONNECTOR	1	
J0006	CEMN079-002	PIN JACK	1	
Q0101-03	2SC3311A	TRANSISTOR	1	
Q0104	2SA1309A-R	TRANSISTOR	1	
Q0105-07	2SC3311A	TRANSISTOR	1	
Q0108	2SA1309A-R	TRANSISTOR	1	
Q0109-11	2SC3311A	TRANSISTOR	1	
Q0112	2SA1309A-R	TRANSISTOR	1	
Q0113-14	2SC3311A	TRANSISTOR	1	
Q0201	2SC3311A	TRANSISTOR	1	
R0101	QRA14CF-75R0	M.RESISTOR 1/4W 75	1	
R0104	QRE141J-101Y	C.RESISTOR 1/4W 100	1	
R0105	QRE141J-563Y	C.RESISTOR 1/4W 56K	1	
R0106	QRE141J-333Y	C.RESISTOR 1/4W 33K	1	
R0107	QRE141J-152Y	C.RESISTOR 1/4W 1.5K	1	
R0109	QRE141J-471Y	C.RESISTOR 1/4W 470	1	
⚠ R0111	QRE141J-473Y	C.RESISTOR 1/4W 47K	1	
R0112	QRE141J-471Y	C.RESISTOR 1/4W 470	1	
R0113	QRE141J-391Y	C.RESISTOR 1/4W 390	1	
R0114	QRE141J-101Y	C.RESISTOR 1/4W 100	1	
R0115	QRA14CF-75R0	M.RESISTOR 1/4W 75	1	
R0118	QRE141J-101Y	C.RESISTOR 1/4W 100	1	
R0119	QRE141J-563Y	C.RESISTOR 1/4W 56K	1	
R0120	QRE141J-333Y	C.RESISTOR 1/4W 33K	1	
R0121	QRE141J-152Y	C.RESISTOR 1/4W 1.5K	1	
R0123	QRE141J-471Y	C.RESISTOR 1/4W 470	1	
⚠ R0125	QRE141J-473Y	C.RESISTOR 1/4W 47K	1	
R0126	QRE141J-471Y	C.RESISTOR 1/4W 470	1	
R0127	QRE141J-391Y	C.RESISTOR 1/4W 390	1	
R0128	QRE141J-101Y	C.RESISTOR 1/4W 100	1	
R0129	QRA14CF-75R0	M.RESISTOR 1/4W 75	1	
R0132	QRE141J-101Y	C.RESISTOR 1/4W 100	1	
R0133	QRE141J-563Y	C.RESISTOR 1/4W 56K	1	
R0134	QRE141J-333Y	C.RESISTOR 1/4W 33K	1	
R0135	QRE141J-152Y	C.RESISTOR 1/4W 1.5K	1	
R0137	QRE141J-471Y	C.RESISTOR 1/4W 470	1	
⚠ R0139	QRE141J-473Y	C.RESISTOR 1/4W 47K	1	

Ref.No.	Part No.	Part Name & Description	Pcs	Remarks
R0140	QRE141J-471Y	C.RESISTOR 1/4W 470	1	
R0141	QRE141J-391Y	C.RESISTOR 1/4W 390	1	
R0142	QRE141J-101Y	C.RESISTOR 1/4W 100	1	
R0143-44	QRE141J-151Y	C.RESISTOR 1/4W 150	1	
R0146	QRE141J-101Y	C.RESISTOR 1/4W 100	1	
R0147-48	QRE141J-333Y	C.RESISTOR 1/4W 33K	1	
⚠ R0149	QRE141J-272Y	C.RESISTOR 1/4W 2.7K	1	
R0150	QRE141J-0R0Y	C.RESISTOR 1/4W 0	1	
R0152-53	QRE141J-151Y	C.RESISTOR 1/4W 150	1	
R0155	QRE141J-101Y	C.RESISTOR 1/4W 100	1	
R0156-57	QRE141J-333Y	C.RESISTOR 1/4W 33K	1	
⚠ R0158	QRE141J-272Y	C.RESISTOR 1/4W 2.7K	1	
R0159	QRE141J-0R0Y	C.RESISTOR 1/4W 0	1	
R0161-63	QRE141J-471Y	C.RESISTOR 1/4W 470	1	
R0164-66	QRE141J-563Y	C.RESISTOR 1/4W 56K	1	
⚠ R0202	QRE141J-102Y	C.RESISTOR 1/4W 1K	1	
R0203	QRE141J-563Y	C.RESISTOR 1/4W 56K	1	
R0204	QRE141J-683Y	C.RESISTOR 1/4W 68K	1	
⚠ R0205	QRE141J-272Y	C.RESISTOR 1/4W 2.7K	1	
VR0101-03	QVP0053-501Z	V.RESISTOR 500	1	

SERVICE ADJUSTMENTS

BEFORE ADJUSTMENTS

1. Ensure that the 120 V AC power is supplied correctly.
2. Warm run the unit and measuring tools sufficiently (at least 30 minutes).
3. Perform all adjustments based on the initial values. There is no problem if the result of an adjustment performed by observing the screen is different from the initial value.
4. Never attempt to turn on potentiometers or other controls that are not explicitly mentioned in the adjustment procedures.

NOTE: When using the BT-YA701P (NTSC/PAL Video Input Card) in an adjustment, be sure to check the output waveforms from the video input card in advance.

SETTINGS REQUIRED FOR ADJUSTMENTS

For the functions other than those that should be set before each adjustment, reset them to the initial values according to the table on page 10 before proceeding to the adjustment.
Correct adjustments will not be possible unless the values of the functions are reset to the initial values.

SETTING ITEMS

Begin adjustments with the primary items and then proceed to the secondary items, (1) to (3).

PRIMARY ADJUSTMENT ITEMS

- Screen voltage adjustment and focusing coarse adjustment
- High-voltage coarse adjustment
- X-ray protector adjustment/check
- High-voltage adjustment
- Focusing adjustment
- Convergence adjustment
- Front rotation adjustment

SECONDARY ADJUSTMENT ITEMS (1)

- Signal contrast adjustments
  (Overscan, underscan, aspect mode)
- Signal chroma/phase adjustments

SECONDARY ADJUSTMENT ITEMS (2)

- Vertical linearity (reference value) adjustments
  (60 Hz, 50 Hz)
- Signal deflection system adjustments
  (Overscan, underscan, aspect mode)

SECONDARY ADJUSTMENT ITEMS (3)

- Low-light white balance adjustment
- Signal white balance adjustments
- Signal brightness adjustments
  (Overscan, underscan, aspect mode)

MEASURING INSTRUMENTS AND TOOLS

1. DC voltmeter (or digital voltmeter)
2. Oscilloscope
3. Color analyzer (color temperature meter)
4. High-voltage voltmeter
5. Signal generator (Should be compatible with the following signal specifications.)
6. Scale (made of non-metallic material)
7. BT-YA701P (NTSC/PAL Video Input Card)
8. BT-YA702P (Component/RGB Input Card)

Fromats of Signal Used in Adjustments	Types of Signals Used in Adjustments
● DTV format component signals (480/60i, 480/60p, 576/50i, 720/60p, 1080/24pSF, 1080/60i) ● NTSC signals (Composite, Y/C) ● PAL signals (Composite, Y/C)	● Color bar signal ● Size adjustment signal ● All white signal ● All black signal ● Mono-scope signal ● Gray scale signal ● 10-step gray scale signal ● Crosshatch signal ● Crosshatch signal with circle pattern

■ FOCUSING AND SCREEN ADJUSTMENT HOLES

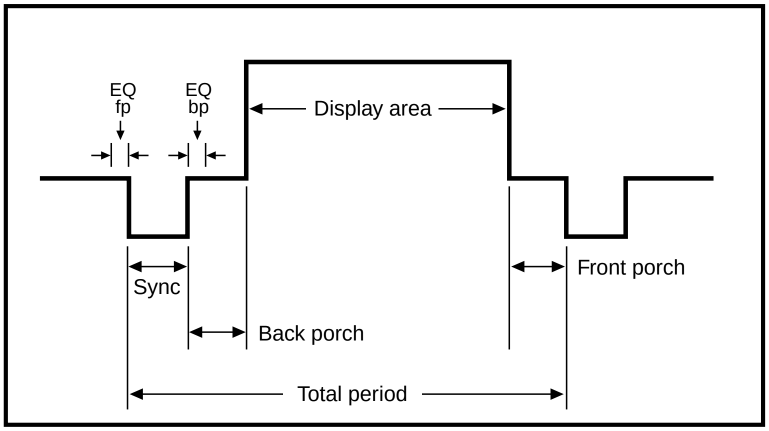
The rear panel has the adjustment holes for use in adjusting the focusing and screen.

[CAUTION]

Be sure to use screwdrivers made of non-metallic materials for the following adjustments. If a metallic screwdriver is used, short-circuiting may damage parts of the unit, including the high-voltage parts.

TIMING CHART OF SIGNALS REQUIRED FOR ADJUSTMENTS

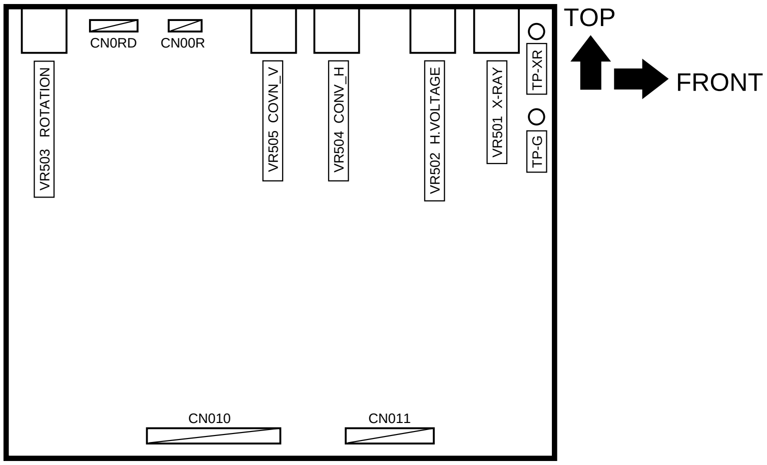
Generate the signals required for adjustments with a programmable signal generator by referring to the following figure.



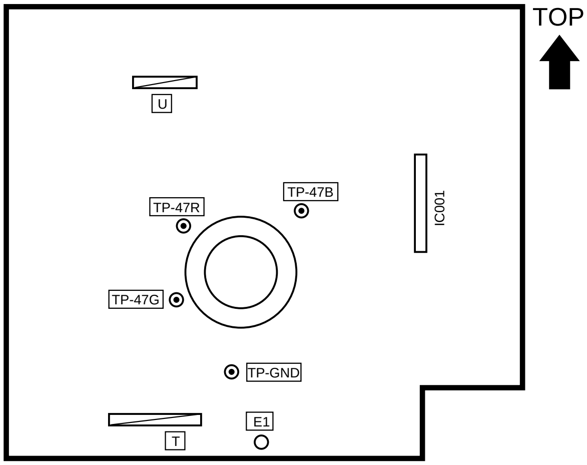
Signal	NTSC (14.3)	PAL	480/60i	576/50i	480/60p	720/60p	1080/24pSF	1080/60i
Resolution (Horizontal)	768	624	720	720	720	1280	1920	1920
Resolution (Vertical)	243	287	244	287	483	720	540	540
Horizontal frequency (kHz)	15.73	15.625	15.73	15.625	31.469	44.955	27	33.75
Vertical frequency (Hz)	29.97i	25i	30i	25i	60p	60p	24pSF (48i)	30i
CS & V		RGB	RGB	RGB	RGB	RGB	RGB	RGB
CS	-1	-1	-1	-1	-1	-1	-1	-1
HS	-1	-1	-1	-1	-1	-1	-1	-1
VS	-1	-1	-1	-1	-1	-1	-1	-1
Dot clock(MHz)	14.318	12	13.5	13.5	27	74.25	74.25	74.25
H period	910	768	858	864	858	1650	2750	2200
H sync	68	56	63	63	63	40	44/44	44/44
H back p.	58	70	59	68	59	260	144/188	144/188
H disp	768	624	720	720	720	1280	1920	1920
V period	263	312	263	312	525	750	562	562
V sync	3	3	3	3	6	5	5	5
V back p.	14	19	13	19	30	20	15	15
V disp	243	287	243	287	483	720	540	540
Equivalent pulse (fp/bp)	3H/3H	3H/3H	3H/3H	3H/3H	0H/0H	0H/0H	0H/0H	0H/0H

ADJUSMENT LOCATIONS

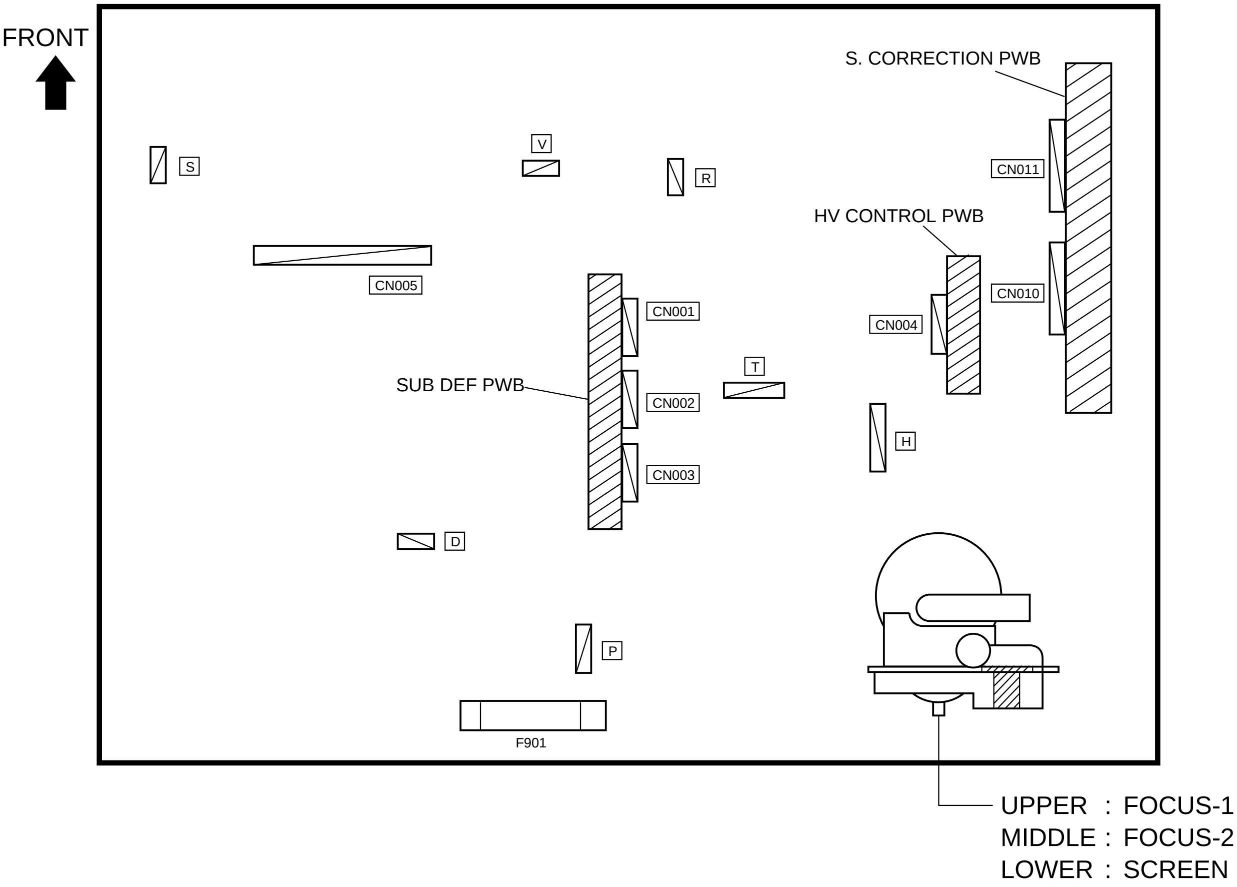
S. CORRECTION PWB (SOLDER SIDE)


CN0RD
CN00R
VR503 ROTATION
VR505 COVN_V
VR504 CONV_H
VR502 H.VOLTAGE
VR501 X-RAY
TP-XR
TP-G
CN010
CN011
TOP
FRONT

CRT SOCKET PWB (SOLDER SIDE)


TOP
U
TP-47B
TP-47R
IC001
TP-47G
TP-GND
E1
T

MAIN PWB


FRONT
S. CORRECTION PWB
S
V
R
CN011
HV CONTROL PWB
CN005
CN010
CN001
CN004
SUB DEF PWB
T
CN002
H
CN003
D
P
F901
UPPER : FOCUS-1
MIDDLE : FOCUS-2
LOWER : SCREEN

BASIC OPERATIONS OF SERVICE MENU

1. ITEMS IN THE SERVICE MENU

The service menu include the following items. The settings and adjustments are classified into these items.
Do not alter the values of unnecessary items.

SIGNAL BLOCK	: Adjustments of the contrast, brightness, chroma and phase.
WHITE BALANCE BLOCK	: Adjustments of the white balance.
DEFLECTION BLOCK	: Adjustments of the deflection circuitry.
CPU BLOCK	: Setting of the entire system by means of the control values of the microcomputer. (This block is usually not adjusted in servicing. Do not touch it except for adjustment items CC41 and CE05 to CE19.)
DIAGNOSIS	: Display of the results of self diagnosis.
UPC1884 ADJ.	: Display of the status of UPC1884 which is the DEF processor IC. (Do not adjust this item because it is not required for servicing.)
TA1276 ADJ.	: Display of the status of TA1276 which is the RGB processor IC. (Do not adjust this item because it is not required for servicing.)
HOUR METER	: Display of the hour meter count.
UPDATE CPU PROGRAM	: Display of the software version.
INITIALIZE EEPROM	: Initialization of the user-setting menu. (Do not adjust this item because it is not required for servicing.)

2. BASIC OPERATIONS IN THE SERVICE MENU

(1) Entering the Service Menu

Use the front panel keys to display the Service Menu (Fig. 1).

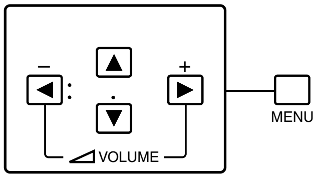


Fig. 1 FRONT PANEL KEYS

① While holding the ▼ key, press the **MENU** key.

The "⚠" mark appears at the center of the screen (Fig. 2).

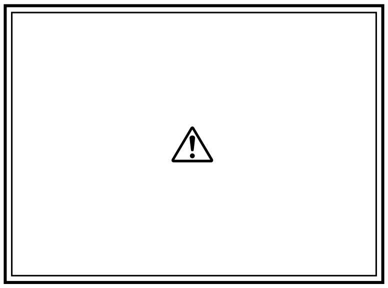


Fig. 2 WRNING MARK

② Before the "⚠" mark disappears (within 5 seconds after it appears), hold the ▼ key and press the **VOL-** (◄) key.

Warning message "**Please don't touch**" appears on the screen (Fig. 3).

Please don't touch!

Fig. 3 WARNING MESSAGE DISPLAY

③ Before the warning message disappears (within 5 seconds after it appears), press the **VOL+** (►) key.

The service menu items appears on the display (Fig. 4).

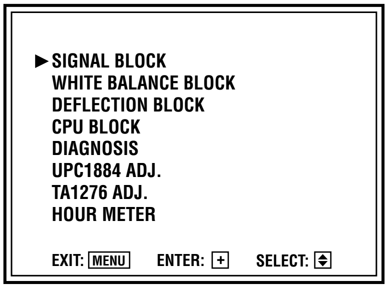
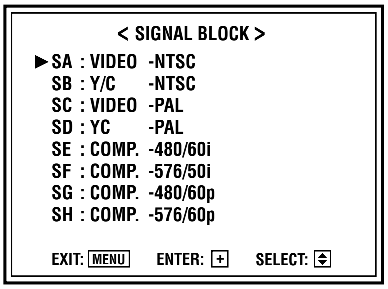


Fig. 4 SERVICE MENU

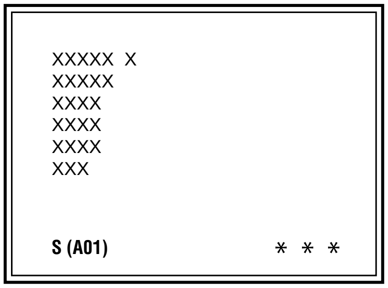
(2) Setting the Service Menu items

① With the Service Menu displayed, press the ▼ key to select the item to be adjusted, then press the **VOL+** (▶) key to enter the submenu for the item.


< SIGNAL BLOCK >
▶SA : VIDEO -NTSC
SB : Y/C -NTSC
SC : VIDEO -PAL
SD : YC -PAL
SE : COMP. -480/60i
SF : COMP. -576/50i
SG : COMP. -480/60p
SH : COMP. -576/60p
EXIT: MENU
ENTER: +
SELECT: ⇕

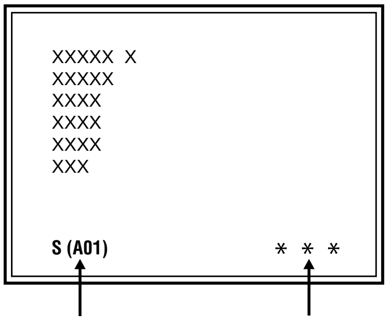
SUBMENU

② Press the ▼ key to select the item to be adjusted, then press the **VOL+** (▶) key to enter the item.


XXXXX X
XXXXX
XXXX
XXXX
XXXX
XXX
S (A01)
* * *

ADJUSTMENT ITEM DISPLAY

③ Set the adjustment item by varying it with the **VOL-** (◀) and **VOL+** (▶) keys.


XXXXX X
XXXXX
XXXX
XXXX
XXXX
XXX
S (A01)
* * *

ADJUSTMENT ITEM **ADJUSTMENT VALUE**

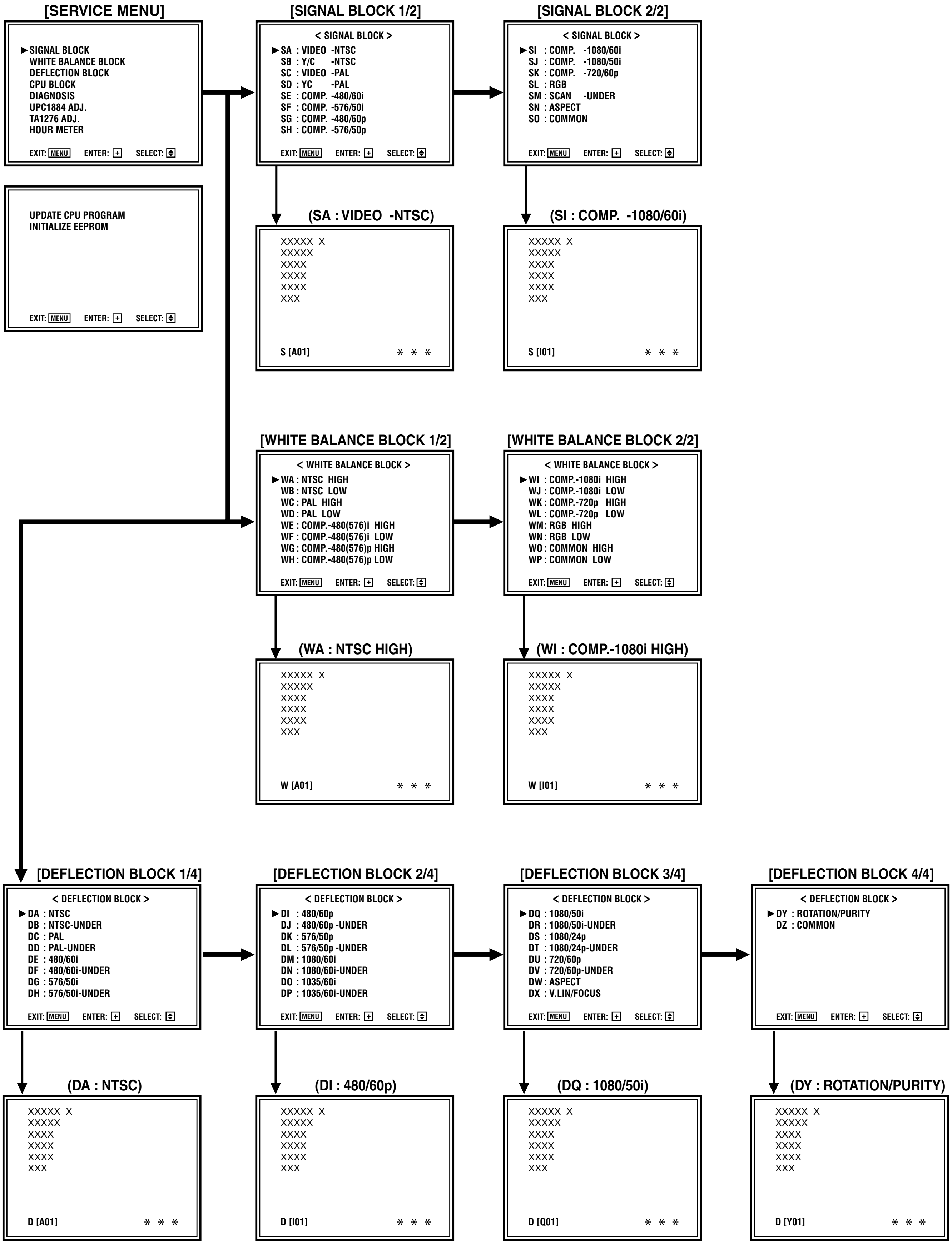
(3) Exiting from the Service Menu

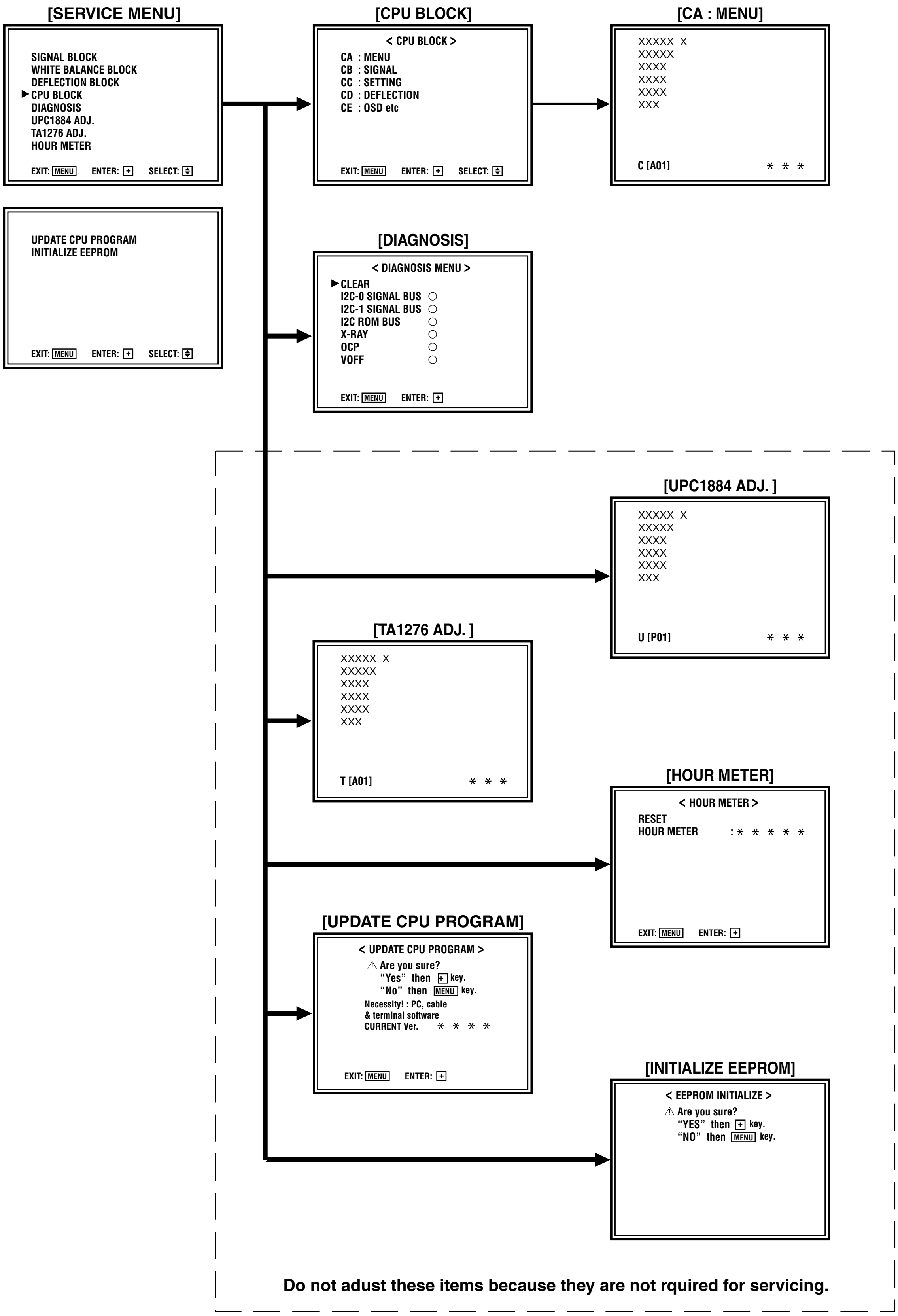
① After completing the adjustment of an item, press the **MENU** key to return to the submenu.

② Press the **MENU** key again to return to the Service Menu.

③ Press the **MENU** key again to return to the normal screen.

SCREEN CONFIGURATION OF THE SERVICE MENU


[SERVICE MENU]
►SIGNAL BLOCK
WHITE BALANCE BLOCK
DEFLECTION BLOCK
CPU BLOCK
DIAGNOSIS
UPC1884 ADJ.
TA1276 ADJ.
HOUR METER
EXIT: MENU ENTER: + SELECT: ⇕
UPDATE CPU PROGRAM
INITIALIZE EEPROM
EXIT: MENU ENTER: + SELECT: ⇕
[SIGNAL BLOCK 1/2]
< SIGNAL BLOCK >
►SA : VIDEO -NTSC
SB : Y/C -NTSC
SC : VIDEO -PAL
SD : YC -PAL
SE : COMP. -480/60i
SF : COMP. -576/50i
SG : COMP. -480/60p
SH : COMP. -576/50p
EXIT: MENU ENTER: + SELECT: ⇕
[SIGNAL BLOCK 2/2]
< SIGNAL BLOCK >
►SI : COMP. -1080/60i
SJ : COMP. -1080/50i
SK : COMP. -720/60p
SL : RGB
SM : SCAN -UNDER
SN : ASPECT
SO : COMMON
EXIT: MENU ENTER: + SELECT: ⇕
(SA : VIDEO -NTSC)
XXXXX X
XXXXX
XXXX
XXXX
XXXX
XXX
S [A01] * * *
(SI : COMP. -1080/60i)
XXXXX X
XXXXX
XXXX
XXXX
XXXX
XXX
S [I01] * * *
[WHITE BALANCE BLOCK 1/2]
< WHITE BALANCE BLOCK >
►WA : NTSC HIGH
WB : NTSC LOW
WC : PAL HIGH
WD : PAL LOW
WE : COMP.-480(576)i HIGH
WF : COMP.-480(576)i LOW
WG : COMP.-480(576)p HIGH
WH : COMP.-480(576)p LOW
EXIT: MENU ENTER: + SELECT: ⇕
[WHITE BALANCE BLOCK 2/2]
< WHITE BALANCE BLOCK >
►WI : COMP.-1080i HIGH
WJ : COMP.-1080i LOW
WK : COMP.-720p HIGH
WL : COMP.-720p LOW
WM: RGB HIGH
WN: RGB LOW
WO : COMMON HIGH
WP : COMMON LOW
EXIT: MENU ENTER: + SELECT: ⇕
(WA : NTSC HIGH)
XXXXX X
XXXXX
XXXX
XXXX
XXXX
XXX
W [A01] * * *
(WI : COMP.-1080i HIGH)
XXXXX X
XXXXX
XXXX
XXXX
XXXX
XXX
W [I01] * * *
[DEFLECTION BLOCK 1/4]
< DEFLECTION BLOCK >
►DA : NTSC
DB : NTSC-UNDER
DC : PAL
DD : PAL-UNDER
DE : 480/60i
DF : 480/60i-UNDER
DG : 576/50i
DH : 576/50i-UNDER
EXIT: MENU ENTER: + SELECT: ⇕
[DEFLECTION BLOCK 2/4]
< DEFLECTION BLOCK >
►DI : 480/60p
DJ : 480/60p -UNDER
DK : 576/50p
DL : 576/50p -UNDER
DM : 1080/60i
DN : 1080/60i-UNDER
DO : 1035/60i
DP : 1035/60i-UNDER
EXIT: MENU ENTER: + SELECT: ⇕
[DEFLECTION BLOCK 3/4]
< DEFLECTION BLOCK >
►DQ : 1080/50i
DR : 1080/50i-UNDER
DS : 1080/24p
DT : 1080/24p-UNDER
DU : 720/60p
DV : 720/60p-UNDER
DW : ASPECT
DX : V.LIN/FOCUS
EXIT: MENU ENTER: + SELECT: ⇕
[DEFLECTION BLOCK 4/4]
< DEFLECTION BLOCK >
►DY : ROTATION/PURITY
DZ : COMMON
EXIT: MENU ENTER: + SELECT: ⇕
(DA : NTSC)
XXXXX X
XXXXX
XXXX
XXXX
XXXX
XXX
D [A01] * * *
(DI : 480/60p)
XXXXX X
XXXXX
XXXX
XXXX
XXXX
XXX
D [I01] * * *
(DQ : 1080/50i)
XXXXX X
XXXXX
XXXX
XXXX
XXXX
XXX
D [Q01] * * *
(DY : ROTATION/PURITY)
XXXXX X
XXXXX
XXXX
XXXX
XXXX
XXX
D [Y01] * * *


[SERVICE MENU]
SIGNAL BLOCK
WHITE BALANCE BLOCK
DEFLECTION BLOCK
▶CPU BLOCK
DIAGNOSIS
UPC1884 ADJ.
TA1276 ADJ.
HOUR METER
EXIT: MENU ENTER: + SELECT: ⇕
UPDATE CPU PROGRAM
INITIALIZE EEPROM
EXIT: MENU ENTER: + SELECT: ⇕
[CPU BLOCK]
< CPU BLOCK >
CA : MENU
CB : SIGNAL
CC : SETTING
CD : DEFLECTION
CE : OSD etc
EXIT: MENU ENTER: + SELECT: ⇕
[CA : MENU]
XXXXX X
XXXXX
XXXX
XXXX
XXXX
XXX
C [A01] * * *
[DIAGNOSIS]
< DIAGNOSIS MENU >
▶CLEAR
I2C-0 SIGNAL BUS ○
I2C-1 SIGNAL BUS ○
I2C ROM BUS ○
X-RAY ○
OCP ○
VOFF ○
EXIT: MENU ENTER: +
[UPC1884 ADJ.]
XXXXX X
XXXXX
XXXX
XXXX
XXXX
XXX
U [P01] * * *
[TA1276 ADJ.]
XXXXX X
XXXXX
XXXX
XXXX
XXXX
XXX
T [A01] * * *
[HOUR METER]
< HOUR METER >
RESET
HOUR METER : * * * * *
EXIT: MENU ENTER: +
[UPDATE CPU PROGRAM]
< UPDATE CPU PROGRAM >
⚠ Are you sure?
"Yes" then + key.
"No" then MENU key.
Necessity! : PC, cable
& terminal software
CURRENT Ver. * * * *
EXIT: MENU ENTER: +
[INITIALIZE EEPROM]
< EEPROM INITIALIZE >
⚠ Are you sure?
"YES" then + key.
"NO" then MENU key.

Do not adust these items because they are not rquired for servicing.

REFERENCE VALUES FOR THE SERVICE MENU ADJUSTMENTS

Note that the following values other than the fixed values should simply be used as references during adjustments. Their correct values may be variable depending on individual units.

■ SIGNAL BLOCK

Adjustment Item	Function	Variable range	Reference value
SA [VIDEO-NTSC]			
S[A01]	CONTRAST	-064 — +063	+003
S[A02]	BRIGHT HIGH	-128 — +127	000
S[A03]	CHROMA	-064 — +063	+008
S[A04]	PHASE	-064 — +063	+020
S[A05]	APERTURE	-064 — +063	000
S[A06]	BRIGHT LOW	-128 — +127	+001
S[A07]	Y DL	000/001	000 (Fixed value)
S[A08]	R-Y PHASE	000 — 003	000 (Fixed value)
S[A09]	R/B GAIN	000 — 003	002 (Fixed value)
S[A10]	G-Y PHASE	000 — 003	002 (Fixed value)
S[A11]	G/B GAIN	000 — 003	003 (Fixed value)
SB [Y/C-NTSC]			
S[B01]	CONTRAST	-064 — +063	-005
S[B02]	BRIGHT HIGH	-128 — +127	000
S[B03]	CHROMA	-064 — +063	-001
S[B04]	PHASE	-064 — +063	+020
S[B05]	APERTURE	-064 — +063	000
S[B06]	BRIGHT LOW	-128 — +127	+001
S[B07]	Y DL	000/001	000 (Fixed value)
S[B08]	R-Y PHASE	000 — 003	000 (Fixed value)
S[B09]	R/B GAIN	000 — 003	002 (Fixed value)
S[B10]	G-Y PHASE	000 — 003	002 (Fixed value)
S[B11]	G/B GAIN	000 — 003	003 (Fixed value)
SC [VIDEO-PAL]			
S[C01]	CONTRAST	-064 — +063	-007
S[C02]	BRIGHT HIGH	-128 — +127	000
S[C03]	CHROMA	-064 — +063	-002
S[C04]	PHASE	-064 — +063	000
S[C05]	APERTURE	-064 — +063	000
S[C06]	BRIGHT LOW	-128 — +127	-001
S[C07]	Y DL	000/001	000 (Fixed value)
S[C08]	R-Y PHASE	000 — 003	000 (Fixed value)
S[C09]	R/B GAIN	000 — 003	002 (Fixed value)
S[C10]	G-Y PHASE	000 — 003	002 (Fixed value)
S[C11]	G/B GAIN	000 — 003	003 (Fixed value)
SD [YC-PAL]			
S[D01]	CONTRAST	-064 — +063	-005
S[D02]	BRIGHT HIGH	-128 — +127	000
S[D03]	CHROMA	-064 — +063	-005

Adjustment Item	Function	Variable range	Reference value
S[D04]	PHASE	-064 — +063	000
S[D05]	APERTURE	-064 — +063	000
S[D06]	BRIGHT LOW	-128 — +127	-001
S[D07]	Y DL	000/001	000 (Fixed value)
S[D08]	R-Y PHASE	000 — 003	000 (Fixed value)
S[D09]	R/B GAIN	000 — 003	002 (Fixed value)
S[D10]	G-Y PHASE	000 — 003	002 (Fixed value)
S[D11]	G/B GAIN	000 — 003	003 (Fixed value)
SE [COMP.-480/60i]			
S[E01]	CONTRAST	-064 — +063	-002
S[E02]	BRIGHT HIGH	-128 — +127	000
S[E03]	CHROMA	-064 — +063	-002
S[E04]	PHASE	-064 — +063	001
S[E05]	APERTURE	-064 — +063	000
S[E06]	BRIGHT LOW	-128 — +127	000
S[E07]	Y DL	000/001	000 (Fixed value)
S[E08]	R-Y PHASE	000 — 003	000 (Fixed value)
S[E09]	R/B GAIN	000 — 003	002 (Fixed value)
S[E10]	G-Y PHASE	000 — 003	002 (Fixed value)
S[E11]	G/B GAIN	000 — 003	003 (Fixed value)
SF [COMP.-576/50i]			
S[F01]	CONTRAST	-064 — +063	000
S[F02]	BRIGHT HIGH	-128 — +127	000
S[F03]	CHROMA	-064 — +063	000
S[F04]	PHASE	-064 — +063	000
S[F05]	APERTURE	-064 — +063	000
S[F06]	BRIGHT LOW	-128 — +127	000
S[F07]	Y DL	000/001	000 (Fixed value)
S[F08]	R-Y PHASE	000 — 003	000 (Fixed value)
S[F09]	R/B GAIN	000 — 003	002 (Fixed value)
S[F10]	G-Y PHASE	000 — 003	002 (Fixed value)
S[F11]	G/B GAIN	000 — 003	003 (Fixed value)
SG [COMP.-480/60p]			
S[G01]	CONTRAST	-064 — +063	000
S[G02]	BRIGHT HIGH	-128 — +127	000
S[G03]	CHROMA	-064 — +063	000
S[G04]	PHASE	-064 — +063	000
S[G05]	APERTURE	-064 — +063	000
S[G06]	BRIGHT LOW	-128 — +127	000
S[G07]	Y DL	000/001	000 (Fixed value)
S[G08]	R-Y PHASE	000 — 003	000 (Fixed value)
S[G09]	R/B GAIN	000 — 003	002 (Fixed value)
S[G10]	G-Y PHASE	000 — 003	002 (Fixed value)
S[G11]	G/B GAIN	000 — 003	003 (Fixed value)

Adjustment Item	Function	Variable range	Reference value
SH [COMP.-576/50p]			
S[H01]	CONTRAST	-064 — +063	000
S[H02]	BRIGHT HIGH	-128 — +127	000
S[H03]	CHROMA	-064 — +063	000
S[H04]	PHASE	-064 — +063	000
S[H05]	APERTURE	-064 — +063	000
S[H06]	BRIGHT LOW	-128 — +127	000
S[H07]	Y DL	000/001	000 (Fixed value)
S[H08]	R-Y PHASE	000 — 003	000 (Fixed value)
S[H09]	R/B GAIN	000 — 003	002 (Fixed value)
S[H10]	G-Y PHASE	000 — 003	002 (Fixed value)
S[H11]	G/B GAIN	000 — 003	003 (Fixed value)
SI [COMP.-1080/60i]			
S[I01]	CONTRAST	-064 — +063	000
S[I02]	BRIGHT HIGH	-128 — +127	000
S[I03]	CHROMA	-064 — +063	000
S[I04]	PHASE	-064 — +063	000
S[I05]	APERTURE	-064 — +063	000
S[I06]	BRIGHT LOW	-128 — +127	000
S[I07]	Y DL	000/001	000 (Fixed value)
S[I08]	R-Y PHASE	000 — 003	000 (Fixed value)
S[I09]	R/B GAIN	000 — 003	003 (Fixed value)
S[I10]	G-Y PHASE	000 — 003	002 (Fixed value)
S[I11]	G/B GAIN	000 — 003	000 (Fixed value)
SJ [COMP.-1080/50i]			
S[J01]	CONTRAST	-064 — +063	000
S[J02]	BRIGHT HIGH	-128 — +127	000
S[J03]	CHROMA	-064 — +063	000
S[J04]	PHASE	-064 — +063	000
S[J05]	APERTURE	-064 — +063	000
S[J06]	BRIGHT LOW	-128 — +127	000
S[J07]	Y DL	000/001	000 (Fixed value)
S[J08]	R-Y PHASE	000 — 003	000 (Fixed value)
S[J09]	R/B GAIN	000 — 003	003 (Fixed value)
S[J10]	G-Y PHASE	000 — 003	002 (Fixed value)
S[J11]	G/B GAIN	000 — 003	000 (Fixed value)
SK [COMP.-720/60p]			
S[K01]	CONTRAST	-064 — +063	000
S[K02]	BRIGHT HIGH	-128 — +127	000
S[K03]	CHROMA	-064 — +063	000
S[K04]	PHASE	-064 — +063	000
S[K05]	APERTURE	-064 — +063	000
S[K06]	BRIGHT LOW	-128 — +127	000

Adjustment Item	Function	Variable range	Reference value
S[K07]	Y DL	000/001	000 (Fixed value)
S[K08]	R-Y PHASE	000 — 003	000 (Fixed value)
S[K09]	R/B GAIN	000 — 003	003 (Fixed value)
S[K10]	G-Y PHASE	000 — 003	002 (Fixed value)
S[K11]	G/B GAIN	000 — 003	000 (Fixed value)
SL [RGB]			
S[L01]	CONTRAST	-064 — +063	000
S[L02]	BRIGHT HIGH	-128 — +127	-70
S[L03]	BRIGHT LOW	-128 — +127	-70
SM [SCAN-UNDER]			
S[M01]	NTSC-COMPOS. CONTRAST	-064 — +063	000
S[M02]	NTSC-COMPOS. BRIGHT HIGH	-128 — +127	000
S[M03]	NTSC-COMPOS. BRIGHT LOW	-128 — +127	000
S[M04]	NTSC-Y/C CONTRAST	-064 — +063	000
S[M05]	NTSC-Y/C BRIGHT HIGH	-128 — +127	000
S[M06]	NTSC-Y/C BRIGHT LOW	-128 — +127	000
S[M07]	PAL-COMPOS. CONTRAST	-064 — +063	000
S[M08]	PAL-COMPOS. BRIGHT HIGH	-128 — +127	000
S[M09]	PAL-COMPOS. BRIGHT LOW	-128 — +127	000
S[M10]	PAL-Y/C CONTRAST	-064 — +063	000
S[M11]	PAL-Y/C BRIGHT HIGH	-128 — +127	000
S[M12]	PAL-Y/C BRIGHT LOW	-128 — +127	000
S[M13]	480i CONTRAST	-064 — +063	000
S[M14]	480i BRIGHT HIGH	-128 — +127	000
S[M15]	480i BRIGHT LOW	-128 — +127	000
S[M16]	576i CONTRAST	-064 — +063	000
S[M17]	576i BRIGHT HIGH	-128 — +127	000
S[M18]	576i BRIGHT LOW	-128 — +127	000
S[M19]	480p CONTRAST	-064 — +063	000
S[M20]	480p BRIGHT HIGH	-128 — +127	000
S[M21]	480p BRIGHT LOW	-128 — +127	000
S[M22]	576p CONTRAST	-064 — +063	000
S[M23]	576p BRIGHT HIGH	-128 — +127	000
S[M24]	576p BRIGHT LOW	-128 — +127	000
S[M25]	1080/60i,1035/60i CONTRAST	-064 — +063	000
S[M26]	1080/60i,1035/60i BRIGHT HIGH	-128 — +127	000
S[M27]	1080/60i,1035/60i BRIGHT LOW	-128 — +127	000
S[M28]	1080/50i,1080/24p CONTRAST	-064 — +063	000
S[M29]	1080/50i,1080/24p BRIGHT HIGH	-128 — +127	000
S[M30]	1080/50i,1080/24p BRIGHT LOW	-128 — +127	000
S[M31]	720p CONTRAST	-064 — +063	000
S[M32]	720p BRIGHT HIGH	-128 — +127	000
S[M33]	720p BRIGHT LOW	-128 — +127	000

Adjustment Item	Function	Variable range	Reference value
SN [ASPECT]			
S[N01]	NTSC-COMPOS. OVERSCAN CONTRAST	-064 — +063	000
S[N02]	NTSC-COMPOS. OVERSCAN BRIGHT HIGH	-128 — +127	000
S[N03]	NTSC-COMPOS. OVERSCAN BRIGHT LOW	-128 — +127	000
S[N04]	NTSC-COMPOS. UNDERSCAN CONTRAST	-064 — +063	000
S[N05]	NTSC-COMPOS. UNDERSCAN BRIGHT HIGH	-128 — +127	000
S[N06]	NTSC-COMPOS. UNDERSCAN BRIGHT LOW	-128 — +127	000
S[N07]	NTSC-Y/C OVERSCAN CONTRAST	-064 — +063	000
S[N08]	NTSC-Y/C OVERSCAN BRIGHT HIGH	-128 — +127	000
S[N09]	NTSC-Y/C OVERSCAN BRIGHT LOW	-128 — +127	000
S[N10]	NTSC-Y/C UNDERSCAN CONTRAST	-064 — +063	000
S[N11]	NTSC-Y/C UNDERSCAN BRIGHT HIGH	-128 — +127	000
S[N12]	NTSC-Y/C UNDERSCAN BRIGHT LOW	-128 — +127	000
S[N13]	PAL-COMPOS. OVERSCAN CONTRAST	-064 — +063	000
S[N14]	PAL-COMPOS. OVERSCAN BRIGHT HIGH	-128 — +127	000
S[N15]	PAL-COMPOS. OVERSCAN BRIGHT LOW	-128 — +127	000
S[N16]	PAL-COMPOS. UNDERSCAN CONTRAST	-064 — +063	000
S[N17]	PAL-COMPOS. UNDERSCAN BRIGHT HIGH	-128 — +127	000
S[N18]	PAL-COMPOS. UNDERSCAN BRIGHT LOW	-128 — +127	000
S[N19]	PAL-Y/C OVERSCAN CONTRAST	-064 — +063	000
S[N20]	PAL-Y/C OVERSCAN BRIGHT HIGH	-128 — +127	000
S[N21]	PAL-Y/C OVERSCAN BRIGHT LOW	-128 — +127	000
S[N22]	PAL-Y/C UNDERSCAN CONTRAST	-064 — +063	000
S[N23]	PAL-Y/C UNDERSCAN BRIGHT HIGH	-128 — +127	000
S[N24]	PAL-Y/C UNDERSCAN BRIGHT LOW	-128 — +127	000
S[N25]	480i OVERSCAN CONTRAST	-064 — +063	000
S[N26]	480i OVERSCAN BRIGHT HIGH	-128 — +127	000
S[N27]	480i OVERSCAN BRIGHT LOW	-128 — +127	000
S[N28]	480i UNDERSCAN CONTRAST	-064 — +063	000
S[N29]	480i UNDERSCAN BRIGHT HIGH	-128 — +127	000
S[N30]	480i UNDERSCAN BRIGHT LOW	-128 — +127	000
S[N31]	576i OVERSCAN CONTRAST	-064 — +063	000
S[N32]	576i OVERSCAN BRIGHT HIGH	-128 — +127	000
S[N33]	576i OVERSCAN BRIGHT LOW	-128 — +127	000
S[N34]	576i UNDERSCAN CONTRAST	-064 — +063	000
S[N35]	576i UNDERSCAN BRIGHT HIGH	-128 — +127	000
S[N36]	576i UNDERSCAN BRIGHT LOW	-128 — +127	000
S[N37]	480p OVERSCAN CONTRAST	-064 — +063	000
S[N38]	480p OVERSCAN BRIGHT HIGH	-128 — +127	000
S[N39]	480p OVERSCAN BRIGHT LOW	-128 — +127	000
S[N40]	480p UNDERSCAN CONTRAST	-064 — +063	000
S[N41]	480p UNDERSCAN BRIGHT HIGH	-128 — +127	000
S[N42]	480p UNDERSCAN BRIGHT LOW	-128 — +127	000

Adjustment Item	Function	Variable range	Reference value
S[N43]	576p OVERSCAN CONTRAST	-064 — +063	000
S[N44]	576p OVERSCAN BRIGHT HIGH	-128 — +127	000
S[N45]	576p OVERSCAN BRIGHT LOW	-128 — +127	000
S[N46]	576p UNDERSCAN CONTRAST	-064 — +063	000
S[N47]	576p UNDERSCAN BRIGHT HIGH	-128 — +127	000
S[N48]	576p UNDERSCAN BRIGHT LOW	-128 — +127	000
SO [COMMON] * When the value of item SO is changed, items SA to SK should be re-adjusted.			
S[O01]	CONTRAST	000 — 127	085
S[O02]	BRIGHT HIGH	000 — 255	128
S[O03]	CHROMA	000 — 127	064
S[O04]	PHASE	000 — 127	064
S[O05]	APERTURE	000 — 127	035
S[O06]	BRIGHT LOW	-128 — +127	000
S[O07]	Y DL	000/001	000 (Fixed value)
S[O08]	R-Y PHASE	000 — 003	000 (Fixed value)
S[O09]	R/B GAIN	000 — 003	003 (Fixed value)
S[O10]	G-Y PHASE	000 — 003	002 (Fixed value)
S[O11]	G/B GAIN	000 — 003	000 (Fixed value)

■ WHITE BALANCE BLOCK

Adjustment Item	Function	Variable range	Reference value
WA [NTSC(COMPOS.,Y/C) HIGH]			
W[A01]	DRIVE (R)	-128 — +127	000
W[A02]	DRIVE (G)	-128 — +127	000
W[A03]	DRIVE (B)	-128 — +127	000
W[A04]	CUTOFF (R)	-128 — +127	000
W[A05]	CUTOFF (G)	-128 — +127	000
W[A06]	CUTOFF (B)	-128 — +127	000
WB [NTSC(COMPOS.,Y/C) LOW]			
W[B01]	DRIVE (R)	-128 — +127	000
W[B02]	DRIVE (G)	-128 — +127	000
W[B03]	DRIVE (B)	-128 — +127	000
W[B04]	CUTOFF (R)	-128 — +127	000
W[B05]	CUTOFF (G)	-128 — +127	000
W[B06]	CUTOFF (B)	-128 — +127	000
WC [PAL(COMPOS.,Y/C) HIGH]			
W[C01]	DRIVE (R)	-128 — +127	000
W[C02]	DRIVE (G)	-128 — +127	000
W[C03]	DRIVE (B)	-128 — +127	000
W[C04]	CUTOFF (R)	-128 — +127	000
W[C05]	CUTOFF (G)	-128 — +127	000
W[C06]	CUTOFF (B)	-128 — +127	000
WD [PAL(COMPOS.,Y/C) LOW]			
W[D01]	DRIVE (R)	-128 — +127	000
W[D02]	DRIVE (G)	-128 — +127	000
W[D03]	DRIVE (B)	-128 — +127	000
W[D04]	CUTOFF (R)	-128 — +127	000
W[D05]	CUTOFF (G)	-128 — +127	000
W[D06]	CUTOFF (B)	-128 — +127	000
WE [COMP.-480(576)i HIGH]			
W[E01]	DRIVE (R)	-128 — +127	000
W[E02]	DRIVE (G)	-128 — +127	000
W[E03]	DRIVE (B)	-128 — +127	000
W[E04]	CUTOFF (R)	-128 — +127	000
W[E05]	CUTOFF (G)	-128 — +127	000
W[E06]	CUTOFF (B)	-128 — +127	000
WF [COMP.-480(576)i LOW]			
W[F01]	DRIVE (R)	-128 — +127	000
W[F02]	DRIVE (G)	-128 — +127	000
W[F03]	DRIVE (B)	-128 — +127	000
W[F04]	CUTOFF (R)	-128 — +127	000
W[F05]	CUTOFF (G)	-128 — +127	000
W[F06]	CUTOFF (B)	-128 — +127	000

Adjustment Item	Function	Variable range	Reference value
WG [COMP.-480(576)p HIGH]			
W[G01]	DRIVE (R)	-128 — +127	000
W[G02]	DRIVE (G)	-128 — +127	000
W[G03]	DRIVE (B)	-128 — +127	000
W[G04]	CUTOFF (R)	-128 — +127	000
W[G05]	CUTOFF (G)	-128 — +127	000
W[G06]	CUTOFF (B)	-128 — +127	000
WH [COMP.-480(576)p LOW]			
W[H01]	DRIVE (R)	-128 — +127	000
W[H02]	DRIVE (G)	-128 — +127	000
W[H03]	DRIVE (B)	-128 — +127	000
W[H04]	CUTOFF (R)	-128 — +127	000
W[H05]	CUTOFF (G)	-128 — +127	000
W[H06]	CUTOFF (B)	-128 — +127	000
WI [COMP.-1080i(1035/60i,1080/60i) HIGH]			
W[I01]	DRIVE (R)	-128 — +127	000
W[I02]	DRIVE (G)	-128 — +127	000
W[I03]	DRIVE (B)	-128 — +127	000
W[I04]	CUTOFF (R)	-128 — +127	000
W[I05]	CUTOFF (G)	-128 — +127	000
W[I06]	CUTOFF (B)	-128 — +127	000
WJ [COMP.-1080i(1035/60i,1080/60i) LOW]			
W[J01]	DRIVE (R)	-128 — +127	000
W[J02]	DRIVE (G)	-128 — +127	000
W[J03]	DRIVE (B)	-128 — +127	000
W[J04]	CUTOFF (R)	-128 — +127	000
W[J05]	CUTOFF (G)	-128 — +127	000
W[J06]	CUTOFF (B)	-128 — +127	000
WK [COMP.-720p HIGH]			
W[K01]	DRIVE (R)	-128 — +127	000
W[K02]	DRIVE (G)	-128 — +127	000
W[K03]	DRIVE (B)	-128 — +127	000
W[K04]	CUTOFF (R)	-128 — +127	000
W[K05]	CUTOFF (G)	-128 — +127	000
W[K06]	CUTOFF (B)	-128 — +127	000
WL [COMP.-720p LOW]			
W[L01]	DRIVE (R)	-128 — +127	000
W[L02]	DRIVE (G)	-128 — +127	000
W[L03]	DRIVE (B)	-128 — +127	000
W[L04]	CUTOFF (R)	-128 — +127	000
W[L05]	CUTOFF (G)	-128 — +127	000
W[L06]	CUTOFF (B)	-128 — +127	000

Adjustment Item	Function	Variable range	Reference value
WM [RGB HIGH]			
W[M01]	DRIVE (R)	-128 — +127	000
W[M02]	DRIVE (G)	-128 — +127	000
W[M03]	DRIVE (B)	-128 — +127	000
W[M04]	CUTOFF (R)	-128 — +127	000
W[M05]	CUTOFF (G)	-128 — +127	000
W[M06]	CUTOFF (B)	-128 — +127	000
WN [RGB LOW]			
W[N01]	DRIVE (R)	-128 — +127	000
W[N02]	DRIVE (G)	-128 — +127	000
W[N03]	DRIVE (B)	-128 — +127	000
W[N04]	CUTOFF (R)	-128 — +127	000
W[N05]	CUTOFF (G)	-128 — +127	000
W[N06]	CUTOFF (B)	-128 — +127	000
WO [COMMON HIGH] * When the value of item WO is changed, items WA, WC, WE, WG, WI, WK and WM should be re-adjusted.			
W[O01]	DRIVE (R)	000 — 127	070
W[O02]	DRIVE (G)	000 — 127	064
W[O03]	DRIVE (B)	000 — 127	055
W[O04]	CUTOFF (R)	000 — 255	050
W[O05]	CUTOFF (G)	000 — 255	050
W[O06]	CUTOFF (B)	000 — 255	050
WP [COMMON LOW] * When the value of item WP is changed, items WB, WD, WF, WH, WJ, WL and WN should be re-adjusted.			
W[P01]	DRIVE (R)	000 — 127	075
W[P02]	DRIVE (G)	000 — 127	064
W[P03]	DRIVE (B)	000 — 127	040
W[P04]	CUTOFF (R)	000 — 255	050
W[P05]	CUTOFF (G)	000 — 255	050
W[P06]	CUTOFF (B)	000 — 255	050

■ DEFLECTION BLOCK

Adjustment Item	Function	Variable range	Reference value
DA [NTSC(COMPOS.,Y/C)]			
D[A01]	HORIZONTAL SIZE	-064 — +064	-023
D[A02]	VERTICAL SIZE	-064 — +064	+048
D[A03]	HORIZONTAL POSITION	-064 — +064	+012
D[A04]	VERTICAL POSITION	-064 — +064	+005
D[A05]	SIDE PIN DISTORTION	-032 — +032	+009
D[A06]	CORNER DISTORTION (W)	-032 — +032	-003
D[A07]	CORNER DISTORTION (S)	-032 — +032	000
D[A08]	PARALLELOGRAM DISTORTION	-032 — +032	+002
D[A09]	TRAPEZOIDAL DISTORTION	-032 — +032	+006
D[A10]	HORIZONTAL ARC DISTORTION	-032 — +032	000
D[A11]	VERTICAL LINEARITY (S CORRECTION)	-016 — +016	000
D[A12]	VERTICAL LINEARITY (C CORRECTION)	-016 — +016	+001
DB [NTSC(COMPOS.,Y/C)-UNDER]			
D[B01]	HORIZONTAL SIZE	-064 — +064	-010
D[B02]	VERTICAL SIZE	-064 — +064	-025
D[B03]	HORIZONTAL POSITION	-064 — +064	000
D[B04]	VERTICAL POSITION	-064 — +064	000
D[B05]	SIDE PIN DISTORTION	-032 — +032	000
D[B06]	CORNER DISTORTION (W)	-032 — +032	000
D[B07]	CORNER DISTORTION (S)	-032 — +032	000
D[B08]	PARALLELOGRAM DISTORTION	-032 — +032	000
D[B09]	TRAPEZOIDAL DISTORTION	-032 — +032	000
D[B10]	HORIZONTAL ARC DISTORTION	-032 — +032	000
D[B11]	VERTICAL LINEARITY (S CORRECTION)	-016 — +016	000
D[B12]	VERTICAL LINEARITY (C CORRECTION)	-016 — +016	000
DC [PAL(COMPOS.,Y/C)]			
D[C01]	HORIZONTAL SIZE	-064 — +064	-022
D[C02]	VERTICAL SIZE	-064 — +064	+048
D[C03]	HORIZONTAL POSITION	-064 — +064	+008
D[C04]	VERTICAL POSITION	-064 — +064	+012
D[C05]	SIDE PIN DISTORTION	-032 — +032	+009
D[C06]	CORNER DISTORTION (W)	-032 — +032	-002
D[C07]	CORNER DISTORTION (S)	-032 — +032	-001
D[C08]	PARALLELOGRAM DISTORTION	-032 — +032	000
D[C09]	TRAPEZOIDAL DISTORTION	-032 — +032	+008
D[C10]	HORIZONTAL ARC DISTORTION	-032 — +032	000
D[C11]	VERTICAL LINEARITY (S CORRECTION)	-016 — +016	-004
D[C12]	VERTICAL LINEARITY (C CORRECTION)	-016 — +016	+005
DD [PAL(COMPOS.,Y/C)-UNDER]			
D[D01]	HORIZONTAL SIZE	-064 — +064	-010
D[D02]	VERTICAL SIZE	-064 — +064	-025

Adjustment Item	Function	Variable range	Reference value
D[D03]	HORIZONTAL POSITION	-064 — +064	000
D[D04]	VERTICAL POSITION	-064 — +064	000
D[D05]	SIDE PIN DISTORTION	-032 — +032	000
D[D06]	CORNER DISTORTION (W)	-032 — +032	000
D[D07]	CORNER DISTORTION (S)	-032 — +032	000
D[D08]	PARALLELOGRAM DISTORTION	-032 — +032	000
D[D09]	TRAPEZOIDAL DISTORTION	-032 — +032	000
D[D10]	HORIZONTAL ARC DISTORTION	-032 — +032	000
D[D11]	VERTICAL LINEARITY (S CORRECTION)	-016 — +016	000
D[D12]	VERTICAL LINEARITY (C CORRECTION)	-016 — +016	000
DE [480/60i]			
D[E01]	HORIZONTAL SIZE	-064 — +064	-025
D[E02]	VERTICAL SIZE	-064 — +064	+050
D[E03]	HORIZONTAL POSITION	-064 — +064	+012
D[E04]	VERTICAL POSITION	-064 — +064	000
D[E05]	SIDE PIN DISTORTION	-032 — +032	+009
D[E06]	CORNER DISTORTION (W)	-032 — +032	-001
D[E07]	CORNER DISTORTION (S)	-032 — +032	-003
D[E08]	PARALLELOGRAM DISTORTION	-032 — +032	000
D[E09]	TRAPEZOIDAL DISTORTION	-032 — +032	+005
D[E10]	HORIZONTAL ARC DISTORTION	-032 — +032	000
D[E11]	VERTICAL LINEARITY (S CORRECTION)	-016 — +016	+001
D[E12]	VERTICAL LINEARITY (C CORRECTION)	-016 — +016	+001
DF [480/60i-UNDER]			
D[F01]	HORIZONTAL SIZE	-064 — +064	-011
D[F02]	VERTICAL SIZE	-064 — +064	-030
D[F03]	HORIZONTAL POSITION	-064 — +064	000
D[F04]	VERTICAL POSITION	-064 — +064	000
D[F05]	SIDE PIN DISTORTION	-032 — +032	000
D[F06]	CORNER DISTORTION (W)	-032 — +032	000
D[F07]	CORNER DISTORTION (S)	-032 — +032	000
D[F08]	PARALLELOGRAM DISTORTION	-032 — +032	000
D[F09]	TRAPEZOIDAL DISTORTION	-032 — +032	000
D[F10]	HORIZONTAL ARC DISTORTION	-032 — +032	000
D[F11]	VERTICAL LINEARITY (S CORRECTION)	-016 — +016	000
D[F12]	VERTICAL LINEARITY (C CORRECTION)	-016 — +016	000
DG [576/50i]			
D[G01]	HORIZONTAL SIZE	-064 — +064	-025
D[G02]	VERTICAL SIZE	-064 — +064	+050
D[G03]	HORIZONTAL POSITION	-064 — +064	+005
D[G04]	VERTICAL POSITION	-064 — +064	+005
D[G05]	SIDE PIN DISTORTION	-032 — +032	+009

Adjustment Item	Function	Variable range	Reference value
D[G06]	CORNER DISTORTION (W)	-032 — +032	-002
D[G07]	CORNER DISTORTION (S)	-032 — +032	-002
D[G08]	PARALLELOGRAM DISTORTION	-032 — +032	+002
D[G09]	TRAPEZOIDAL DISTORTION	-032 — +032	+010
D[G10]	HORIZONTAL ARC DISTORTION	-032 — +032	000
D[G11]	VERTICAL LINEARITY (S CORRECTION)	-016 — +016	-003
D[G12]	VERTICAL LINEARITY (C CORRECTION)	-016 — +016	+003
DH [576/50i-UNDER]			
D[H01]	HORIZONTAL SIZE	-064 — +064	-011
D[H02]	VERTICAL SIZE	-064 — +064	-030
D[H03]	HORIZONTAL POSITION	-064 — +064	000
D[H04]	VERTICAL POSITION	-064 — +064	000
D[H05]	SIDE PIN DISTORTION	-032 — +032	000
D[H06]	CORNER DISTORTION (W)	-032 — +032	000
D[H07]	CORNER DISTORTION (S)	-032 — +032	000
D[H08]	PARALLELOGRAM DISTORTION	-032 — +032	000
D[H09]	TRAPEZOIDAL DISTORTION	-032 — +032	000
D[H10]	HORIZONTAL ARC DISTORTION	-032 — +032	000
D[H11]	VERTICAL LINEARITY (S CORRECTION)	-016 — +016	000
D[H12]	VERTICAL LINEARITY (C CORRECTION)	-016 — +016	000
DI [480/60p]			
D[I01]	HORIZONTAL SIZE	-064 — +064	-022
D[I02]	VERTICAL SIZE	-064 — +064	+050
D[I03]	HORIZONTAL POSITION	-064 — +064	+007
D[I04]	VERTICAL POSITION	-064 — +064	+002
D[I05]	SIDE PIN DISTORTION	-032 — +032	+002
D[I06]	CORNER DISTORTION (W)	-032 — +032	-002
D[I07]	CORNER DISTORTION (S)	-032 — +032	-002
D[I08]	PARALLELOGRAM DISTORTION	-032 — +032	+001
D[I09]	TRAPEZOIDAL DISTORTION	-032 — +032	+010
D[I10]	HORIZONTAL ARC DISTORTION	-032 — +032	000
D[I11]	VERTICAL LINEARITY (S CORRECTION)	-016 — +016	-003
D[I12]	VERTICAL LINEARITY (C CORRECTION)	-016 — +016	+003
DJ [480/60p-UNDER]			
D[J01]	HORIZONTAL SIZE	-064 — +064	-010
D[J02]	VERTICAL SIZE	-064 — +064	-025
D[J03]	HORIZONTAL POSITION	-064 — +064	000
D[J04]	VERTICAL POSITION	-064 — +064	-002
D[J05]	SIDE PIN DISTORTION	-032 — +032	000
D[J06]	CORNER DISTORTION (W)	-032 — +032	000
D[J07]	CORNER DISTORTION (S)	-032 — +032	000
D[J08]	PARALLELOGRAM DISTORTION	-032 — +032	000

Adjustment Item	Function	Variable range	Reference value
D[J09]	TRAPEZOIDAL DISTORTION	-032 — +032	-003
D[J10]	HORIZONTAL ARC DISTORTION	-032 — +032	000
D[J11]	VERTICAL LINEARITY (S CORRECTION)	-016 — +016	000
D[J12]	VERTICAL LINEARITY (C CORRECTION)	-016 — +016	000
DK [576/50p]			
D[K01]	HORIZONTAL SIZE	-064 — +064	-023
D[K02]	VERTICAL SIZE	-064 — +064	+050
D[K03]	HORIZONTAL POSITION	-064 — +064	+003
D[K04]	VERTICAL POSITION	-064 — +064	+005
D[K05]	SIDE PIN DISTORTION	-032 — +032	+002
D[K06]	CORNER DISTORTION (W)	-032 — +032	000
D[K07]	CORNER DISTORTION (S)	-032 — +032	-005
D[K08]	PARALLELOGRAM DISTORTION	-032 — +032	+001
D[K09]	TRAPEZOIDAL DISTORTION	-032 — +032	+017
D[K10]	HORIZONTAL ARC DISTORTION	-032 — +032	000
D[K11]	VERTICAL LINEARITY (S CORRECTION)	-016 — +016	-002
D[K12]	VERTICAL LINEARITY (C CORRECTION)	-016 — +016	+003
DL [576/50p-UNDER]			
D[L01]	HORIZONTAL SIZE	-064 — +064	-010
D[L02]	VERTICAL SIZE	-064 — +064	-025
D[L03]	HORIZONTAL POSITION	-064 — +064	000
D[L04]	VERTICAL POSITION	-064 — +064	-002
D[L05]	SIDE PIN DISTORTION	-032 — +032	000
D[L06]	CORNER DISTORTION (W)	-032 — +032	000
D[L07]	CORNER DISTORTION (S)	-032 — +032	000
D[L08]	PARALLELOGRAM DISTORTION	-032 — +032	000
D[L09]	TRAPEZOIDAL DISTORTION	-032 — +032	-003
D[L10]	HORIZONTAL ARC DISTORTION	-032 — +032	000
D[L11]	VERTICAL LINEARITY (S CORRECTION)	-016 — +016	000
D[L12]	VERTICAL LINEARITY (C CORRECTION)	-016 — +016	000
DM [1080/60i]			
D[M01]	HORIZONTAL SIZE	-064 — +064	-020
D[M02]	VERTICAL SIZE	-064 — +064	+030
D[M03]	HORIZONTAL POSITION	-064 — +064	+023
D[M04]	VERTICAL POSITION	-064 — +064	-010
D[M05]	SIDE PIN DISTORTION	-032 — +032	+012
D[M06]	CORNER DISTORTION (W)	-032 — +032	-002
D[M07]	CORNER DISTORTION (S)	-032 — +032	-002
D[M08]	PARALLELOGRAM DISTORTION	-032 — +032	+002
D[M09]	TRAPEZOIDAL DISTORTION	-032 — +032	+002
D[M10]	HORIZONTAL ARC DISTORTION	-032 — +032	000
D[M11]	VERTICAL LINEARITY (S CORRECTION)	-016 — +016	000
D[M12]	VERTICAL LINEARITY (C CORRECTION)	-016 — +016	000

Adjustment Item	Function	Variable range	Reference value
DN [1080/60i-UNDER]			
D[N01]	HORIZONTAL SIZE	-064 — +064	-010
D[N02]	VERTICAL SIZE	-064 — +064	-030
D[N03]	HORIZONTAL POSITION	-064 — +064	000
D[N04]	VERTICAL POSITION	-064 — +064	-002
D[N05]	SIDE PIN DISTORTION	-032 — +032	000
D[N06]	CORNER DISTORTION (W)	-032 — +032	000
D[N07]	CORNER DISTORTION (S)	-032 — +032	000
D[N08]	PARALLELOGRAM DISTORTION	-032 — +032	000
D[N09]	TRAPEZOIDAL DISTORTION	-032 — +032	000
D[N10]	HORIZONTAL ARC DISTORTION	-032 — +032	000
D[N11]	VERTICAL LINEARITY (S CORRECTION)	-016 — +016	000
D[N12]	VERTICAL LINEARITY (C CORRECTION)	-016 — +016	000
DO [1035/60i]			
D[O01]	HORIZONTAL SIZE	-064 — +064	-020
D[O02]	VERTICAL SIZE	-064 — +064	+045
D[O03]	HORIZONTAL POSITION	-064 — +064	+022
D[O04]	VERTICAL POSITION	-064 — +064	+005
D[O05]	SIDE PIN DISTORTION	-032 — +032	+012
D[O06]	CORNER DISTORTION (W)	-032 — +032	000
D[O07]	CORNER DISTORTION (S)	-032 — +032	-002
D[O08]	PARALLELOGRAM DISTORTION	-032 — +032	+002
D[O09]	TRAPEZOIDAL DISTORTION	-032 — +032	+009
D[O10]	HORIZONTAL ARC DISTORTION	-032 — +032	000
D[O11]	VERTICAL LINEARITY (S CORRECTION)	-016 — +016	000
D[O12]	VERTICAL LINEARITY (C CORRECTION)	-016 — +016	+003
DP [1035/60i-UNDER]			
D[P01]	HORIZONTAL SIZE	-064 — +064	-013
D[P02]	VERTICAL SIZE	-064 — +064	-030
D[P03]	HORIZONTAL POSITION	-064 — +064	000
D[P04]	VERTICAL POSITION	-064 — +064	-002
D[P05]	SIDE PIN DISTORTION	-032 — +032	000
D[P06]	CORNER DISTORTION (W)	-032 — +032	000
D[P07]	CORNER DISTORTION (S)	-032 — +032	000
D[P08]	PARALLELOGRAM DISTORTION	-032 — +032	000
D[P09]	TRAPEZOIDAL DISTORTION	-032 — +032	000
D[P10]	HORIZONTAL ARC DISTORTION	-032 — +032	000
D[P11]	VERTICAL LINEARITY (S CORRECTION)	-016 — +016	000
D[P12]	VERTICAL LINEARITY (C CORRECTION)	-016 — +016	000
DQ [1080/50i]			
D[Q01]	HORIZONTAL SIZE	-064 — +064	-020
D[Q02]	VERTICAL SIZE	-064 — +064	+033
D[Q03]	HORIZONTAL POSITION	-064 — +064	+033

Adjustment Item	Function	Variable range	Reference value
D[Q04]	VERTICAL POSITION	-064 — +064	-008
D[Q05]	SIDE PIN DISTORTION	-032 — +032	+014
D[Q06]	CORNER DISTORTION (W)	-032 — +032	000
D[Q07]	CORNER DISTORTION (S)	-032 — +032	-004
D[Q08]	PARALLELOGRAM DISTORTION	-032 — +032	+002
D[Q09]	TRAPEZOIDAL DISTORTION	-032 — +032	+003
D[Q10]	HORIZONTAL ARC DISTORTION	-032 — +032	000
D[Q11]	VERTICAL LINEARITY (S CORRECTION)	-016 — +016	000
D[Q12]	VERTICAL LINEARITY (C CORRECTION)	-016 — +016	000
DR [1080/50i-UNDER]			
D[R01]	HORIZONTAL SIZE	-064 — +064	-012
D[R02]	VERTICAL SIZE	-064 — +064	-030
D[R03]	HORIZONTAL POSITION	-064 — +064	000
D[R04]	VERTICAL POSITION	-064 — +064	-002
D[R05]	SIDE PIN DISTORTION	-032 — +032	000
D[R06]	CORNER DISTORTION (W)	-032 — +032	000
D[R07]	CORNER DISTORTION (S)	-032 — +032	000
D[R08]	PARALLELOGRAM DISTORTION	-032 — +032	000
D[R09]	TRAPEZOIDAL DISTORTION	-032 — +032	000
D[R10]	HORIZONTAL ARC DISTORTION	-032 — +032	000
D[R11]	VERTICAL LINEARITY (S CORRECTION)	-016 — +016	000
D[R12]	VERTICAL LINEARITY (C CORRECTION)	-016 — +016	000
DS [1080/24p]			
D[S01]	HORIZONTAL SIZE	-064 — +064	-020
D[S02]	VERTICAL SIZE	-064 — +064	+033
D[S03]	HORIZONTAL POSITION	-064 — +064	+033
D[S04]	VERTICAL POSITION	-064 — +064	-008
D[S05]	SIDE PIN DISTORTION	-032 — +032	+015
D[S06]	CORNER DISTORTION (W)	-032 — +032	-001
D[S07]	CORNER DISTORTION (S)	-032 — +032	-002
D[S08]	PARALLELOGRAM DISTORTION	-032 — +032	+001
D[S09]	TRAPEZOIDAL DISTORTION	-032 — +032	+003
D[S10]	HORIZONTAL ARC DISTORTION	-032 — +032	000
D[S11]	VERTICAL LINEARITY (S CORRECTION)	-016 — +016	000
D[S12]	VERTICAL LINEARITY (C CORRECTION)	-016 — +016	000
DT [1080/24p-UNDER]			
D[T01]	HORIZONTAL SIZE	-064 — +064	-012
D[T02]	VERTICAL SIZE	-064 — +064	-030
D[T03]	HORIZONTAL POSITION	-064 — +064	000
D[T04]	VERTICAL POSITION	-064 — +064	-002
D[T05]	SIDE PIN DISTORTION	-032 — +032	000
D[T06]	CORNER DISTORTION (W)	-032 — +032	000

Adjustment Item	Function	Variable range	Reference value
D[T07]	CORNER DISTORTION (S)	-032 — +032	000
D[T08]	PARALLELOGRAM DISTORTION	-032 — +032	000
D[T09]	TRAPEZOIDAL DISTORTION	-032 — +032	000
D[T10]	HORIZONTAL ARC DISTORTION	-032 — +032	000
D[T11]	VERTICAL LINEARITY (S CORRECTION)	-016 — +016	000
D[T12]	VERTICAL LINEARITY (C CORRECTION)	-016 — +016	000
DU [720/60p]			
D[U01]	HORIZONTAL SIZE	-064 — +064	+030
D[U02]	VERTICAL SIZE	-064 — +064	+035
D[U03]	HORIZONTAL POSITION	-064 — +064	+012
D[U04]	VERTICAL POSITION	-064 — +064	-012
D[U05]	SIDE PIN DISTORTION	-032 — +032	+009
D[U06]	CORNER DISTORTION (W)	-032 — +032	000
D[U07]	CORNER DISTORTION (S)	-032 — +032	-003
D[U08]	PARALLELOGRAM DISTORTION	-032 — +032	+002
D[U09]	TRAPEZOIDAL DISTORTION	-032 — +032	+002
D[U10]	HORIZONTAL ARC DISTORTION	-032 — +032	000
D[U11]	VERTICAL LINEARITY (S CORRECTION)	-016 — +016	000
D[U12]	VERTICAL LINEARITY (C CORRECTION)	-016 — +016	000
DV [720/60p-UNDER]			
D[V01]	HORIZONTAL SIZE	-064 — +064	-019
D[V02]	VERTICAL SIZE	-064 — +064	-030
D[V03]	HORIZONTAL POSITION	-064 — +064	000
D[V04]	VERTICAL POSITION	-064 — +064	-002
D[V05]	SIDE PIN DISTORTION	-032 — +032	000
D[V06]	CORNER DISTORTION (W)	-032 — +032	000
D[V07]	CORNER DISTORTION (S)	-032 — +032	000
D[V08]	PARALLELOGRAM DISTORTION	-032 — +032	000
D[V09]	TRAPEZOIDAL DISTORTION	-032 — +032	000
D[V10]	HORIZONTAL ARC DISTORTION	-032 — +032	000
D[V11]	VERTICAL LINEARITY (S CORRECTION)	-016 — +016	000
D[V12]	VERTICAL LINEARITY (C CORRECTION)	-016 — +016	000
DW [ASPECT]			
D[W01]	NTSC OVERSCAN VERTICAL SIDE	-064 — +064	-008
D[W02]	NTSC OVERSCAN VERTICAL POSITION	-064 — +064	-002
D[W03]	NTSC OVERSCAN SIDE PIN DISTORTION	-032 — +032	+008
D[W04]	NTSC UNDERSCAN VERTICAL SIZE	-064 — +064	-008
D[W05]	NTSC UNDERSCAN VERTICAL POSITION	-064 — +064	-002
D[W06]	NTSC UNDERSCAN SIDE PIN DISTORTION	-032 — +032	+008
D[W07]	PAL OVERSCAN VERTICAL SIDE	-064 — +064	-004
D[W08]	PAL OVERSCAN VERTICAL POSITION	-064 — +064	-002
D[W09]	PAL OVERSCAN SIDE PIN DISTORTION	-032 — +032	+008

Adjustment Item	Function	Variable range	Reference value
D[W10]	PAL UNDERSCAN VERTICAL SIZE	-064 — +064	-008
D[W11]	PAL UNDERSCAN VERTICAL POSITION	-064 — +064	-004
D[W12]	PAL UNDERSCAN SIDE PIN DISTORTION	-032 — +032	+008
D[W13]	480i OVERSCAN VERTICAL SIZE	-064 — +064	-010
D[W14]	480i OVERSCAN VERTICAL POSITION	-064 — +064	-002
D[W15]	480i OVERSCAN SIDE PIN DISTORTION	-032 — +032	+008
D[W16]	480i UNDERSCAN VERTICAL SIZE	-064 — +064	-008
D[W17]	480i UNDERSCAN VERTICAL POSITION	-064 — +064	-002
D[W18]	480i UNDERSCAN SIDE PIN DISTORTION	-032 — +032	+008
D[W19]	576i OVERSCAN VERTICAL SIZE	-064 — +064	-010
D[W20]	576i OVERSCAN VERTICAL POSITION	-064 — +064	-002
D[W21]	576i OVERSCAN SIDE PIN DISTORTION	-032 — +032	+008
D[W22]	576i UNDERSCAN VERTICAL SIZE	-064 — +064	-008
D[W23]	576i UNDERSCAN VERTICAL POSITION	-064 — +064	-002
D[W24]	576i UNDERSCAN SIDE PIN DISTORTION	-032 — +032	+008
D[W25]	480p OVERSCAN VERTICAL SIZE	-064 — +064	-003
D[W26]	480p OVERSCAN VERTICAL POSITION	-064 — +064	-003
D[W27]	480p OVERSCAN SIDE PIN DISTORTION	-032 — +032	+011
D[W28]	480p UNDERSCAN VERTICAL SIZE	-064 — +064	-010
D[W29]	480p UNDERSCAN VERTICAL POSITION	-064 — +064	-003
D[W30]	480p UNDERSCAN SIDE PIN DISTORTION	-032 — +032	+011
D[W31]	576p OVERSCAN VERTICAL SIZE	-064 — +064	-003
D[W32]	576p OVERSCAN VERTICAL POSITION	-064 — +064	000
D[W33]	576p OVERSCAN SIDE PIN DISTORTION	-032 — +032	+011
D[W34]	576p UNDERSCAN VERTICAL SIZE	-064 — +064	-007
D[W35]	576p UNDERSCAN VERTICAL POSITION	-064 — +064	000
D[W36]	576p UNDERSCAN SIDE PIN DISTORTION	-032 — +032	+012
DX [V.LIN/FOCUS]			
D[X01]	45 — 55Hz VERTICAL LINEARITY (S CORRECTION)	-016 — +016	+011
D[X02]	45 — 55Hz VERTICAL LINEARITY (C CORRECTION)	-016 — +016	+003
D[X03]	45 — 55Hz FOCUS (PARABOLA)	-032 — +032	000
D[X04]	55 — 65Hz VERTICAL LINEARITY (S CORRECTION)	-016 — +016	+011
D[X05]	55 — 65Hz VERTICAL LINEARITY (C CORRECTION)	-016 — +016	+003
D[X06]	55 — 65Hz FOCUS (PARABOLA)	-032 — +032	000
D[X07]	SPARE (S CORRECTION)	-016 — +016	000
D[X08]	SPARE (C CORRECTION)	-016 — +016	000
D[X09]	SPARE (PARABOLA)	-032 — +032	000
DY [ROTATION/PURITY]			
D[Y01]	ROTATION	-032 — +031	+015
D[Y02]	PURITY	-128 — +127	000

Adjustment Item	Function	Variable range	Reference value
DZ [COMMON] * When the value of item DZ is changed, items DA to DV should be re-adjusted.			
D[Z01]	HORIZONTAL SIZE	000 — 127	063
D[Z02]	VERTICAL SIZE	000 — 127	063
D[Z03]	HORIZONTAL POSITION	000 — 127	063
D[Z04]	VERTICAL POSITION	000 — 127	080
D[Z05]	SIDE PIN DISTORTION	000 — 063	031
D[Z06]	CORNER DISTORTION (W)	000 — 063	031
D[Z07]	CORNER DISTORTION (S)	000 — 063	031
D[Z08]	PARALLELOGRAM DISTORTION	000 — 063	031
D[Z09]	TRAPEZOIDAL DISTORTION	000 — 063	031
D[Z10]	HORIZONTAL ARC DISTORTION	000 — 063	031
D[Z11]	VERTICAL LINEARITY (S CORRECTION)	000 — 031	016
D[Z12]	VERTICAL LINEARITY (C CORRECTION)	000 — 031	016
D[Z13]	VERTICAL MAX SIZE CONTROL	000 — 031	016
D[Z14]	FOCUS (PHASE)	000 — 063	022
D[Z15]	FOCUS (PARABOLA)	000 — 063	044

■ CPU BLOCK

Adjustment Item	Function	Variable range	Reference value
CC [SETTING]			
C[C41]		000 — 003	000
CE [OSD etc]			
C[E05]	NTSC, 480/60i CORNER DISTORTION (W)	-032 — +032	000
C[E06]	NTSC, 480/60i CORNER DISTORTION (S)	-032 — +032	+002
C[E07]	NTSC, 480/60i PARALLELOGRAM DISTORTION	-032 — +032	000
C[E08]	NTSC, 480/60i TRAPEZOIDAL DISTORTION	-032 — +032	-002
C[E09]	NTSC, 480/60i HORIZONTAL ARC DISTORTION	-032 — +032	000
C[E010]	PAL, 576/50i CORNER DISTORTION (W)	-032 — +032	+003
C[E011]	NTSC, 480/60i CORNER DISTORTION (S)	-032 — +032	000
C[E012]	NTSC, 480/60i PARALLELOGRAM DISTORTION	-032 — +032	000
C[E013]	NTSC, 480/60i TRAPEZOIDAL DISTORTION	-032 — +032	-004
C[E014]	480/60p HORIZONTAL ARC DISTORTION	-032 — +032	000
C[E015]	480/60p CORNER DISTORTION (W)	-032 — +032	000
C[E016]	480/60p CORNER DISTORTION (S)	-032 — +032	+002
C[E017]	480/60p PARALLELOGRAM DISTORTION	-032 — +032	000
C[E018]	480/60p TRAPEZOIDAL DISTORTION	-032 — +032	-005
C[E019]	480/60p HORIZONTAL ARC DISTORTION	-032 — +032	000

ADJUSTMENT PROCEDURES

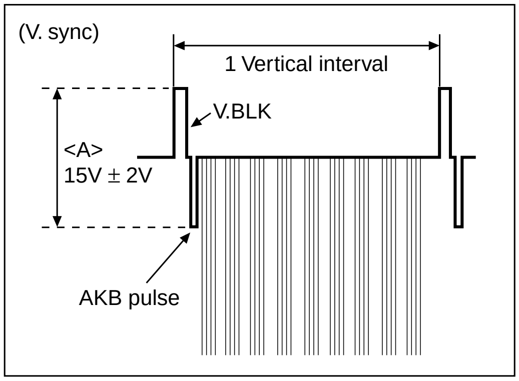
SCREEN VOLTAGE ADJUSTMENT AND FOCUSING COARSE ADJUSTMENT

SCREEN VOLTAGE ADJUSTMENT AND FOCUSING COARSE ADJUSTMENT

Measuring Instruments	**Signal generator (All-black signal, Crosshatch signal)** **Oscilloscope**
Card (Slot)	**Component/RGB Input Card (Slot 1)**
Test Points	**TP-47B, TP-47R, TP-47G [CRT SOCKET PWB]** **TP-GND [CRT SOCKET PWB]**
Adjustment Points	**SCREEN VR [Bottom potentiometer on high-voltage transformer]** **FOCUS VR1 [Top potentiometer on high-voltage transformer]** **FOCUS VR2 [Middle potentiometer on high-voltage transformer]** **CC41 (AKB Setting) [Service Menu]**

Note: Ensure that the value of CC41 (CPU BLOCK) in the Service Menu is “000”.

1. Turn the **SCREEN VR** fully counterclockwise.
2. Connect the oscilloscope across TP-47B and TP-GND and turn the unit ON.
3. Apply the 1080/60i component all-black signal to INPUT A.
4. Turn the **SCREEN VR** slowly clockwise until the raster lights up slightly.
5. Set the value of **CC41 (CPU BLOCK)** in the Service Menu from “000” to “003”.
6. Turn the **SCREEN VR** slowly clockwise until the voltage amplitude <A> of the AKB pulse at TP-47B is about **15 V**.
7. Observe the waveforms at TP-47R and TP-47G to ensure that the V.BLK pulse is present.
   If V.BLK is not clear, adjust the **SCREEN VR** so that the voltage amplitude <A> of the AKB pulse at TP-47R and TP-47G becomes **15 ± 2 V**.
8. Apply the 1080/60i crosshatch signal to INPUT A.
9. Adjust the **FOCUS VR1** and **VR2** so that the entire image is in focus.



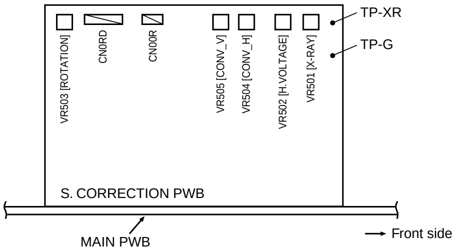
HIGH-VOLTAGE COARSE ADJUSTMENT

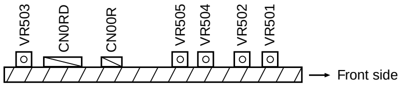
HIGH-VOLTAGE COARSE ADJUSTMENT

Measuring Instruments	**Signal generator (Crosshatch signal)** **High-voltage voltmeter**
Card (Slot)	**Component/RGB Input Card (Slot 1)**
Test Points	**Anode of CRT**
Adjustment Points	**VR502 (High-Voltage VR) [S. CORRECTION PWB]** **FOCUS VR1 [Top potentiometer on high-voltage transformer]** **FOCUS VR2 [Middle potentiometer on high-voltage transformer]**

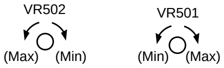
Note: Perform the following adjustments after completing the Screen Voltage and Focusing Coarse adjustments.

1. Turn **VR502** fully clockwise (the minimum position).
2. Turn **VR501** fully counterclockwise (the minimum position).
3. Connect the high-voltage voltmeter to the anode of the CRT and turn the unit ON.
4. Apply the 1080/60i crosshatch signal to INPUT A (Terminal Y on the Component/RGB Input Card).
5. Turn **VR502** slowly counterclockwise until the value of the high voltage is about **25 kV**.
6. Adjust the **FOCUS VR1** and **VR2** so that the entire image is in focus.





(Top surface view of S. CORRECTION PWB)



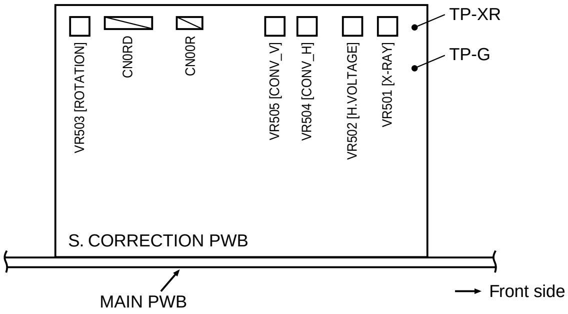
X-RAY PROTECTOR ADJUSTMENT/CHECK

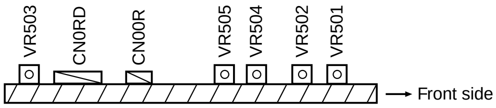
X-RAY PROTECTOR ADJUSTMENT/CHECK

Measuring Instruments	**Signal generator (All-white signal)** **High-voltage voltmeter** **DC voltmeter**
Card (Slot)	**Component/RGB Input Card (Slot 1)**
Test Points	**Anode of CRT** **TP-XR, TP-GND [S. CORRECTION PWB]**
Adjustment Points	**VR501 (X-Ray Protector Adjustment VR) [S. CORRECTION PWB]** **VR502 (High-Voltage VR) [S. CORRECTION PWB]**

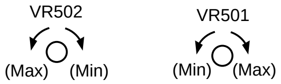
Note: Perform the following adjustment after completing the Screen Voltage adjustment.

1. Turn the **VR502** fully clockwise (the minimum position).
2. Turn the **VR501** fully counterclockwise (the minimum position).
3. Set the CONTRAST and BRIGHT potentiometers on the front panel to the fully clockwise positions.
4. Connect the high-voltage voltmeter to the anode of the CRT and turn the unit ON.
5. Apply the 1080/60i all-white signal to INPUT A (Terminal Y on the Component/RGB Input Card).
6. Turn the **VR502** slowly counterclockwise until the value of the high-voltage voltmeter is **27.0 kV ± 0.2 kV**.
7. Connect the DC voltmeter across TP-XR and TP-GND.
8. Turn the **VR501** clockwise until the voltmeter reading is **5.5 V**.
9. Turn the **VR501** slowly clockwise until the point at which the X-ray protector starts operation.
   (The INPUT SELECT D LED on the front panel should blink.)
10. Turn the **VR502** slightly clockwise and turn the unit ON again.
11. Turn the **VR502** slowly counterclockwise and check the point at which the X-ray protector starts to operate.
    Check that the high-voltage voltmeter value at which the X-ray protector starts to operate, is **27.0 kV ± 0.2 kV**.
12. Apply adhesive for fixing the **VR501** in the adjusted position.
13. Set the CONTRAST and BRIGHT potentiometers on the front panel to the center click positions.


TP-XR
TP-G
VR503 [ROTATION]
CN0RD
CN00R
VR505 [CONV_V]
VR504 [CONV_H]
VR502 [H.VOLTAGE]
VR501 [X-RAY]
S. CORRECTION PWB
MAIN PWB
Front side


VR503
CN0RD
CN00R
VR505
VR504
VR502
VR501
Front side

(Top surface view of the S. CORRECTION PWB)


VR502
(Max)
(Min)
VR501
(Min)
(Max)

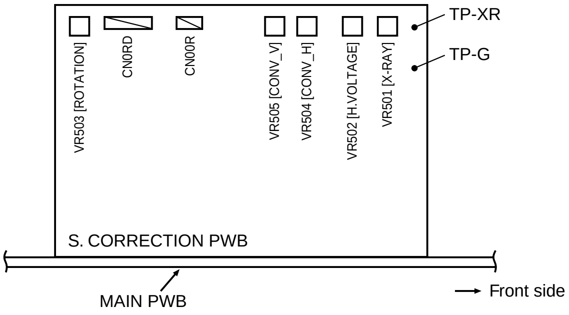
HIGH-VOLTAGE ADJUSTMENT

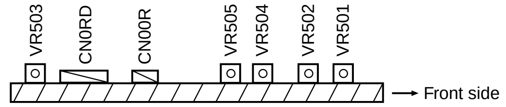
HIGH-VOLTAGE ADJUSTMENT

Measuring Instruments	**Signal generator (All-black signal)** **High-voltage voltmeter**
Card (Slot)	**Component/RGB Input Card (Slot 1)**
Test Points	**Anode of CRT**
Adjustment Points	**VR502 (High-Voltage VR) [S. CORRECTION PWB]**

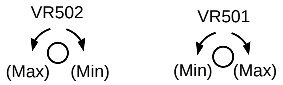
Note: Perform the following adjustments after completing the Screen Voltage and X-Ray Protector adjustments.

1. Turn the **VR502** fully clockwise.
2. Connect the high-voltage voltmeter to the anode of the CRT and turn the unit ON.
3. Apply the 1080/60i all-black signal to INPUT A (Terminal Y on the Component/RGB Input Card).
4. If the raster is visible, adjust the BRIGHT potentiometer on the front panel to turn the screen all black.
5. Turn **VR502** slowly counterclockwise until the value of the high voltage is **25 kV ± 0.2 kV**.
6. Apply adhesive for fixing the **VR502** in the adjusted position.
7. Set the BRIGHT potentiometer on the front panel to the center click position.


TP-XR
TP-G
VR503 [ROTATION]
CN0RD
CN00R
VR505 [CONV_V]
VR504 [CONV_H]
VR502 [H.VOLTAGE]
VR501 [X-RAY]
S. CORRECTION PWB
MAIN PWB
Front side


VR503
CN0RD
CN00R
VR505
VR504
VR502
VR501
Front side

(Top surface view of the S. CORRECTION PWB)


VR502
(Max)
(Min)
VR501
(Min)
(Max)

FOCUSING ADJUSTMENT

FOCUSING ADJUSTMENT

Measuring Instruments	**Signal generator (Character signal)**
Card (Slot)	**Component/RGB Input Card (Slot 1)**
Test Points	
Adjustment Points	**FOCUS VR1 [Top potentiometer on high-voltage transformer]** **FOCUS VR2 [Middle potentiometer on high-voltage transformer]**

Note: Perform the following adjustments after completing the Screen Voltage, X-Ray Protector and High-Voltage adjustments.

1. Apply the 1080/60i character signal to INPUT A (Terminal Y on the Component/RGB Input Card).
2. Set the CONTRAST and BRIGHT potentiometers on the front panel to the center click positions.
3. Adjust the **FOCUS VR1** and **VR2** so that the horizontal and vertical lines in the image are clearly visible.

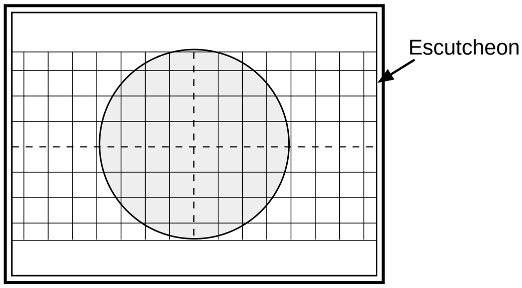
CONVERGENCE ADJUSTMENT

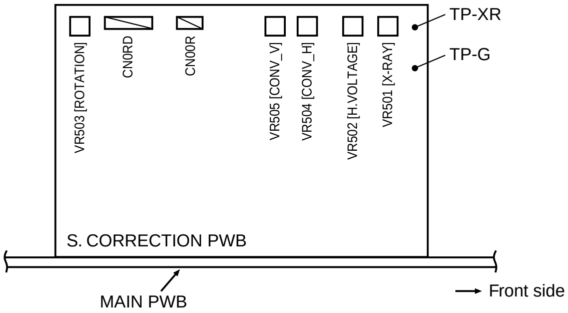
CONVERGENCE ADJUSTMENT

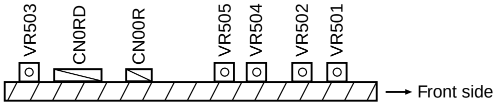
Measuring Instruments	**Signal generator (Crosshatch signal with circle pattern)**
Card (Slot)	**Component/RGB Input Card (Slot 1)**
Test Points	
Adjustment Points	**VR504 (CONV_H) [S. CORRECTION PWB]** **VR505 (CONV_V) [S. CORRECTION PWB]**

Notes:
- **Perform the following adjustments after completing the Screen Voltage, X-Ray Protector, High Voltage and Focusing adjustments.**
- **Ensure that CN0RD and CN00R on the S. Correction PWB are connected to the Deflection yoke and Main Board.**

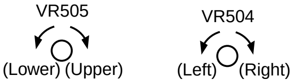
1. Apply the 1080/60i crosshatch signal with circle pattern to INPUT A (Terminal Y on the Component/RGB Input Card).
2. Turn the **VR504** to optimize the horizontal convergence value at the center of the screen (turning the potentiometer counterclockwise shifts BLUE toward the right with respect to RED).
3. Turn the **VR505** to optimize the vertical convergence value at the center of the screen (turning the potentiometer counterclockwise shifts BLUE downward with respect to RED).


Escutcheon


TP-XR
TP-G
VR503 [ROTATION]
CN0RD
CN00R
VR505 [CONV_V]
VR504 [CONV_H]
VR502 [H.VOLTAGE]
VR501 [X-RAY]
S. CORRECTION PWB
MAIN PWB
Front side


VR503
CN0RD
CN00R
VR505
VR504
VR502
VR501
Front side

(Top surface view of S. CORRECTION PWB)


VR505
(Lower) (Upper)
VR504
(Left) (Right)

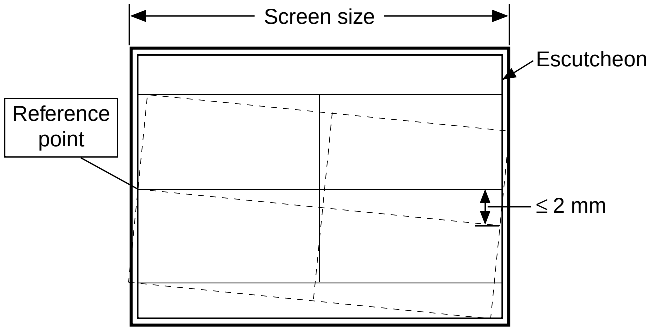
FRONT ROTATION ADJUSTMENT

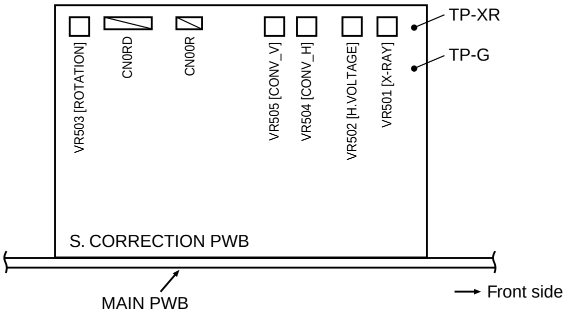
FRONT ROTATION ADJUSTMENT

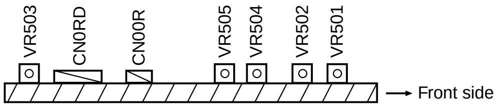
Measuring Instruments	**Signal generator (Size adjustment signal)**
Card (Slot)	**Component/RGB Input Card (Slot 1)**
Test Points	
Adjustment Points	**DY01 (Rotation), DM04 (Vertical Position) [Service Menu]** **VR503 (ROTATION) [S. CORRECTION PWB]**

Notes:
- **Perform the following adjustments after completing the Screen Voltage, High-Voltage, Focusing and X-Ray Protector adjustments.**
- **Ensure that CN0RD and CN00R on the S. Correction PWB are connected to the Deflection Yoke and Main PWB.**
- **If the S. Correction PWB has VR503 on it, adjust the image tilting by turning VR503 instead of using the remote control cord (DY01).**

1. Apply the 1080/60i size adjustment signal to INPUT A (Terminal Y on the Component/RGB Input Card).
2. Adjust **DY01** of the Service Menu to decrease the image tilting to no more than **2 mm**. If the reference point which is the vertical center position on the left of the image (reference points) is deviated, adjust **DM04** to correct it.


Screen size
Escutcheon
Reference point
≤ 2 mm


VR503 [ROTATION]
CN0RD
CN00R
VR505 [CONV_V]
VR504 [CONV_H]
VR502 [H.VOLTAGE]
VR501 [X-RAY]
TP-XR
TP-G
S. CORRECTION PWB
MAIN PWB
Front side


VR503
CN0RD
CN00R
VR505
VR504
VR502
VR501
Front side

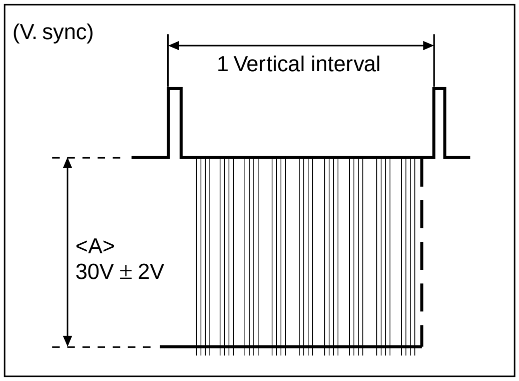
(Top surface view of S. CORRECTION PWB)

SIGNAL CONTRAST ADJUSTMENTS

CONTRAST ADJUSTMENT (HDTV)

Measuring Instruments	**Signal generator (Crosshatch signal)** **Oscilloscope**
Card (Slot)	**Component/RGB Input Card (Slot 1)**
Test Points	**TP-47G [CRT SOCKET PWB]** **TP-GND [CRT SOCKET PWB]**
Adjustment Points	**S*01 (Overscan Contrast), SM** (Underscan Contrast) [Service Menu]**

Notes:
- **Perform the following adjustments after completing the Screen Voltage adjustment.**
- **Set the CONTRAST data in the Setup Menu to “00”.**
- **The value adjusted at the SO adjustment becomes the reference value for the following adjustments. When this data is changed, it is required to re-adjust the data of all of the adjustment signals (HDTV, SDTV and NTSC/PAL). When re-adjusting the 1080/60i signal, use the SI.**
- **When overscan data of a signal is changed, it is required to re-adjust the underscan data of the same adjustment signal.**



— Standard value (SO) adjustment —

1. Apply the 1080/60i crosshatch signal to INPUT A (Terminal Y on the Component/RGB Input Card).
2. Set the CONTRAST potentiometer on the front panel to the center click position.
3. Connect the oscilloscope across TP-47G and TP-GND.
4. Adjust **SO01** in the Service Menu to set the voltage amplitude <A> in the figure on the right to **30 V ± 2 V**.

— Other signals adjustments —

5. Apply the 1080/60i crosshatch signal to INPUT A (Terminal Y on the Component/RGB Input Card).
6. Set the CONTRAST potentiometer on the front panel to the center click position.
7. Connect the oscilloscope across TP-47G and TP-GND.
8. Adjust **SI01** in the Service Menu to set the voltage amplitude <A> in the figure on the right to **30 V ± 2 V**.
9. Set the UNDER SCAN button on the front panel to ON so that the scanning size is set to underscanning.
10. Adjust **SM25** to set the voltage amplitude <A> to **30 V ± 2 V**.
11. Press the UNDER SCAN button on the front panel to set the underscan to OFF.
12. Vary the adjustment signal and adjustment data, and re-perform adjustments in steps 5 to 11 above (see Table 1).

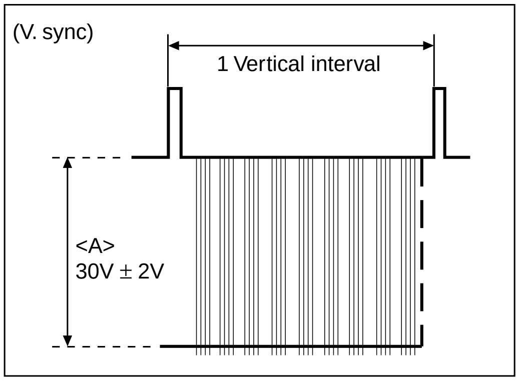
Adjustment Signal	Scanning Size	Adjustment Data
COMMON	Overscan	SO01
	Underscan	—
1080/60i	Overscan	SI01
	Underscan	SM25
1080/24pSF	Overscan	SJ01
	Underscan	SM28
720/60p	Overscan	SK01
	Underscan	SM31

Table 1

CONTRAST ADJUSTMENT (SDTV)

Measuring Instruments	**Signal generator (Crosshatch signal)** **Oscilloscope**
Card (Slot)	**Component/RGB Input Card (Slot 1)**
Test Points	**TP-47G [CRT SOCKET PWB]** **TP-GND [CRT SOCKET PWB]**
Adjustment Points	**S*01 (4:3 Overscan Contrast), SM** (4:3 Underscan Contrast),** **SN** (16:9 Overscan/Underscan Contrast) [Service Menu]**

Notes:
- **Perform the following adjustments after completing the 1080/60i signal Contrast adjustment.**
- **Set the CONTRAST data in the Setup Menu to "00".**
- **The SO value (see the description of the HDTV Contrast Adjustment) becomes the reference value for the following adjustments. When this data is changed, it is required to re-adjust the data of all of the adjustment signals (HDTV, SDTV and NTSC/PAL).**
  When re-adjusting the 1080/60i signal, use the SI.
- **When overscan data of a signal is changed, it is required to re-adjust the underscan data of the same adjustment signal.**
- **When the 4:3 data of a signal is changed, it is required to re-adjust the 16:9 data of the same adjustment signal.**



1. Apply the 480/60i crosshatch signal to INPUT A (Terminal Y on the Component/RGB Input Card).
2. Set the CONTRAST potentiometer on the front panel to the center click position.
3. Connect the oscilloscope across TP-47G and TP-GND.
4. Adjust **SE01** in the Service Menu to set the voltage amplitude <A> in the figure on the right to **30 V ± 2 V**.
5. Set the ASPECT button on the front panel to ON so that the scanning size is 16:9.
6. Adjust **SN25** to set the voltage amplitude <A> to **30 V ± 2 V**.
7. Set the ASPECT button on the front panel to OFF and the UNDER SCAN button to ON to set the scanning size to underscanning for the 4:3 ratio.
8. Adjust **SM13** to set the voltage amplitude <A> to **30 V ± 2 V**.
9. Set the ASPECT button on the front panel to ON to set the scanning size to underscanning for the 16:9 ratio.
10. Adjust **SN28** to set the voltage amplitude <A> to **30 V ± 2 V**.
11. Set the ASPECT and UNDER SCAN buttons on the front panel to OFF.
12. Vary the adjustment signal and adjustment data, and re-perform adjustments in steps 1 to 11 above (see Table 2).

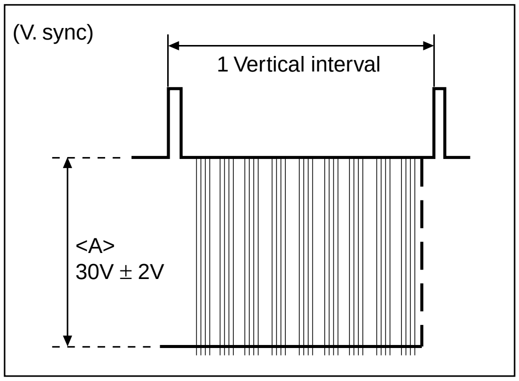
Adjustment Signal	Scanning Size	Aspect Ratio	
		4 : 3	16 : 9
480/60i	Overscan	SE01	SN25
	Underscan	SM13	SN28
576/50i	Overscan	SF01	SN31
	Underscan	SM16	SN34
480/60p	Overscan	SG01	SN37
	Underscan	SM19	SN40

Table 2

CONTRAST ADJUSTMENT (NTSC/PAL VIDEO)

Measuring Instruments	**Signal generator (Crosshatch signal)** **Oscilloscope**
Card (Slot)	**NTSC/PAL Video Input Card (Slot 2)**
Test Points	**TP-47G [CRT SOCKET PWB]** **TP-GND [CRT SOCKET PWB]**
Adjustment Points	**S*01 (4:3 Overscan Contrast), SM** (4:3 Underscan Contrast),** **SN** (16:9 Overscan/Underscan Contrast) [Service Menu]**

Notes:
- **Ensure that the output waveforms from the NTSC/PAL Video Input Cards are normal before proceeding to the following adjustments (see page 72).**
- **Perform the following adjustments after completing the 1080/60i signal Contrast Adjustment.**
- **Set the CONTRAST data in the Setup Menu to “00”.**
- **The SO value (see the description of the HDTV Contrast Adjustment) becomes the reference value for the following adjustments. When this data is changed, it is required to re-adjust the data of all of the adjustment signals (HDTV, SDTV and NTSC/PAL).**
  When re-adjusting the 1080/60i signal, use the SI. (For the adjustment of the 1080/60i signal, use the Component/RGB Input Card.)
- **When overscan data of a signal is changed, it is required to re-adjust the underscan data of the same adjustment signal.**
- **When the 4:3 data of a signal is changed, it is required to re-adjust the 16:9 data of the same adjustment signal.**



1. Apply the NTSC crosshatch signal to INPUT C (Terminal VIDEO1 on the NTSC/PAL Video Input Card).
2. Set the CONTRAST potentiometer on the front panel to the center click position.
3. Connect the oscilloscope across TP-47G and TP-GND.
4. Adjust **SA01** in the Service Menu to set the voltage amplitude <A> in the figure on the right to **30 V ± 2 V**.
5. Set the ASPECT button on the front panel to ON so that the scanning size is 16:9.
6. Adjust **SN01** to set the voltage amplitude <A> to **30 V ± 2 V**.
7. Set the ASPECT button on the front panel to OFF and the UNDER SCAN button to ON to set the scanning size to underscanning for the 4:3 ratio.
8. Adjust **SM01** to set the voltage amplitude <A> to **30 V ± 2 V**.
9. Set the ASPECT button on the front panel to ON to set the scanning size to underscanning for the 16:9 ratio.
10. Adjust **SN04** to set the voltage amplitude <A> to **30 V ± 2 V**.
11. Set the ASPECT and UNDER SCAN buttons on the front panel to OFF.
12. Vary the adjustment signal and adjustment data, and re-perform adjustments in steps 1 to 11 above (see Table 3).

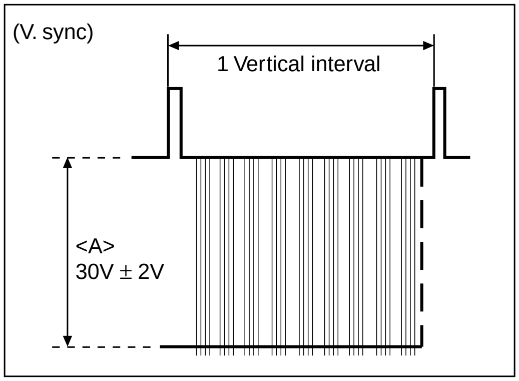
Adjustment Signal	**Scanning Size**	**Aspect Ratio**	
		4 : 3	**16 : 9**
NTSC (VIDEO)	Overscan	SA01	SN01
	Underscan	SM01	SN04
PAL (VIDEO)	Overscan	SC01	SN13
	Underscan	SM07	SN16

Table 3

CONTRAST ADJUSTMENT (NTSC/PAL Y/C)

Measuring Instruments	**Signal generator (Crosshatch signal)** **Oscilloscope**
Card (Slot)	**NTSC/PAL Video Input Card (Slot 2)**
Test Points	**TP-47G [CRT SOCKET PWB]** **TP-GND [CRT SOCKET PWB]**
Adjustment Points	**S*01 (4:3 Overscan Contrast), SM** (4:3 Underscan Contrast),** **SN** (16:9 Overscan/Underscan Contrast) [Service Menu]**

Notes:
- **Ensure that the output waveforms from the NTSC/PAL Video Input Cards are normal before proceeding to the following adjustments (see page 72).**
- **Perform the following adjustments after completing the 1080/60i signal Contrast Adjustment.**
- **Set the CONTRAST data in the Setup Menu to "00".**
- **The SO value (see the description of the HDTV Contrast Adjustment) becomes the reference value for the following adjustments. When this data is changed, it is required to re-adjust the data of all of the adjustment signals (HDTV, SDTV and NTSC/PAL).**
  When re-adjusting the 1080/60i signal, use the SI. (For the adjustment of the 1080/60i signal, use the Component/RGB Input Card.)
- **When overscan data of a signal is changed, it is required to re-adjust the underscan data of the same adjustment signal.**
- **When the 4:3 data of a signal is changed, it is required to re-adjust the 16:9 data of the same adjustment signal.**



1. Apply the NTSC crosshatch signal to INPUT D (Terminal Y/C on the NTSC/PAL Video Input Card).
2. Set the CONTRAST potentiometer on the front panel to the center click position.
3. Connect the oscilloscope across TP-47G and TP-GND.
4. Adjust **SB01** in the Service Menu to set the voltage amplitude <A> in the figure on the right to **30 V ± 2 V**.
5. Set the ASPECT button on the front panel to ON so that the scanning size is 16:9.
6. Adjust **SN07** to set the voltage amplitude <A> to **30 V ± 2 V**.
7. Set the ASPECT button on the front panel to OFF and the UNDER SCAN button to ON to set the scanning size to underscanning for the 4:3 ratio.
8. Adjust **SM04** to set the voltage amplitude <A> to **30 V ± 2 V**.
9. Set the ASPECT button on the front panel to ON to set the scanning size to underscanning for the 16:9 ratio.
10. Adjust **SN10** to set the voltage amplitude <A> to **30 V ± 2 V**.
11. Set the ASPECT and UNDER SCAN buttons on the front panel to OFF.
12. Vary the adjustment signal and adjustment data, and re-perform adjustments in steps 1 to 11 above (see Table 4).

Adjustment Signal	**Scanning Size**	**Aspect Ratio**	
		4 : 3	**16 : 9**
NTSC (Y/C)	Overscan	SB01	SN07
	Underscan	SM04	SN10
PAL (Y/C)	Overscan	SD01	SN19
	Underscan	SM10	SN22

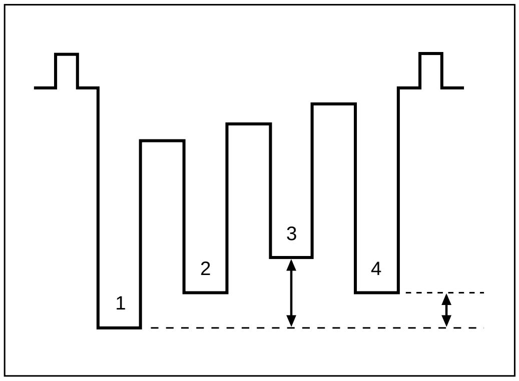
Table 4

SIGNAL CHROMA/PHASE ADJUSTMENTS

CHROMA/PHASE ADJUSTMENTS (COMPONENT)

Measuring Instruments	**Signal generator (Component color bar signal)** **Oscilloscope**
Card (Slot)	**Component/RGB Input Card (Slot 1)**
Test Points	**TP-47B [CRT SOCKET PWB]** **TP-GND [CRT SOCKET PWB]**
Adjustment Points	**S*03 (Chroma), S*04 (Phase) [Service Menu]**

Notes:
- **Perform the following adjustments after completing the Contrast adjustment.**
- **Set the CHROMA and PHASE data in the Setup Menu to "00".**
- **The value adjusted at the SO adjustment becomes the reference value for the following adjustments. When this data is changed, it is required to re-adjust the data of all of the adjustment signals (Component, NTSC and PAL). When re-adjusting the 1080/60i signal, use the SI.**



1. Apply the 1080/60i component color bar signal to INPUT A.
2. Set the CHROMA and PHASE potentiometers on the front panel to the center click positions.
3. Connect the oscilloscope across TP-47B and TP-GND.
4. Adjust **SO03** in the Service Menu to set the level difference between waveforms 1 and 4 in the figure on the right to **0 V ± 2 V**.
5. Adjust **SO04** to set the level difference between 1 and 3 to **0 V ± 2 V**.
6. Vary the adjustment signal and adjustment data, and re-perform adjustments in steps 1 to 5 above (see Table 5).

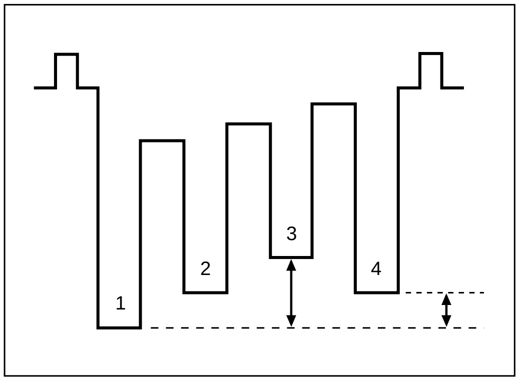
Adjustment Signal	Adjustment Data	
	Chroma	Phase
COMMON	SO03	SO04
1080/60i	SI03	SI04
1080/24psf	SJ03	SJ04
720/60p	SK03	SK04
480/60i	SE03	SE04
576/50i	SF03	SF04
480/60p	SG03	SG04

Table 5

CHROMA/PHASE ADJUSTMENTS (NTSC)

Measuring Instruments	**Signal generator (NTSC 75% color bar signal)** **Oscilloscope**
Card (Slot)	**NTSC/PAL Video Input Card (Slot 2)**
Test Points	**TP-47B [CRT SOCKET PWB]** **TP-GND [CRT SOCKET PWB]**
Adjustment Points	**S*03 (Chroma), S*04 (Phase) [Service Menu]**

Notes:
- **Ensure that the output waveforms from the NTSC/PAL Video Input Cards are normal before proceeding to the following adjustments (see page 72).**
- **Perform the following adjustments after completing the 1080/60i signal Chroma/Phase Adjustments.**
- **Set the CHROMA and PHASE data in the Setup Menu to "00".**
- **The SO value (see the description of the Component Signal Chroma/Phase Adjustments) becomes the reference value for the following adjustments. When this data is changed, it is required to re-adjust the data of all of the adjustment signals (Component, NTSC and PAL).**
  When re-adjusting the 1080/60i signal, use the SI. (For the adjustment of the 1080/60i signal, use the Component/RGB Input Card.)



1. Apply the NTSC color bar signal to INPUT C (Terminal VIDEO1 on the NTSC/PAL Video Input Card).
2. Set the CHROMA and PHASE potentiometers on the front panel to the center click positions.
3. Connect the oscilloscope across TP-47B and TP-GND.
4. Adjust **SA03** in the Service Menu to set the level difference between waveforms 1 and 4 in the figure on the right to **0 V ± 2 V**.
5. Adjust **SO04** to set the level difference between 1 and 3 to **0 V ± 2 V**.
6. Apply the NTSC color bar signal to INPUT D (Terminal Y/C on the NTSC/PAL Video Input Card) and perform the adjustments in steps 2 to 5 above. See Table 6 for the adjustment data.

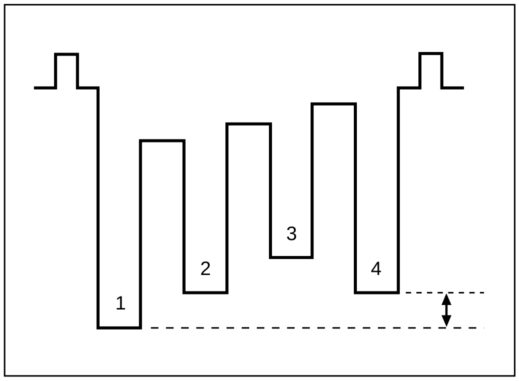
Adjustment Signal	**Adjustment Data**	
	Chroma	**Phase**
NTSC (VIDEO)	SA03	SA04
NTSC (Y/C)	SB03	SB04

Table 6

CHROMA ADJUSTMENTS (PAL)

Measuring Instruments	**Signal generator (PAL 75% color bar signal)** **Oscilloscope**
Card (Slot)	**NTSC/PAL Video Input Card (Slot 2)**
Test Points	**TP-47B [CRT SOCKET PWB]** **TP-GND [CRT SOCKET PWB]**
Adjustment Points	**S*03 (Chroma) [Service Menu]**

Notes:
- **Ensure that the output waveforms from the NTSC/PAL Video Input Cards are normal before proceeding to the following adjustments (see page 72).**
- **Perform the following adjustments after completing the 1080/60i signal Chroma/Phase Adjustments.**
- **Set the CHROMA and PHASE data in the Setup Menu to “00”.**
- **The SO value (see the description of the Component Signal Chroma/Phase Adjustments) becomes the reference value for the following adjustments. When this data is changed, it is required to re-adjust the data of all of the adjustment signals (Component, NTSC and PAL).**
  When re-adjusting the 1080/60i signal, use the SI. (For the adjustment of the 1080/60i signal, use the Component/RGB Input Card.)



1. Apply the PAL color bar signal to INPUT C (Terminal VIDEO1 on the NTSC/PAL Video Input Card).
2. Set the CHROMA and PHASE potentiometers on the front panel to the center click positions.
3. Connect the oscilloscope across TP-47B and TP-GND.
4. Adjust **SC03** in the Service Menu to set the level difference between waveforms 1 and 4 in the figure on the right to **0 V ± 2 V**.
5. Apply the PAL color bar signal to INPUT D (Terminal Y/C on the NTSC/PAL Video Input Card) and perform the adjustments in steps 2 to 4 above. See Table 7 for the adjustment data.

Adjustment Signal	**Adjustment Data**
	Chroma
PAL (VIDEO)	SC03
PAL (Y/C)	SD03

Table 7

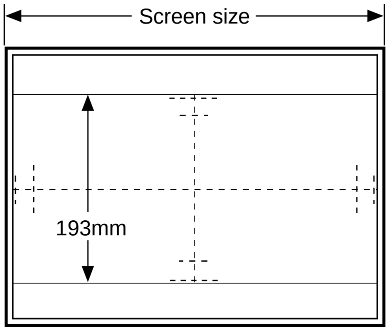
VERTICAL LINEARITY REFERENCE VALUE ADJUSTMENTS

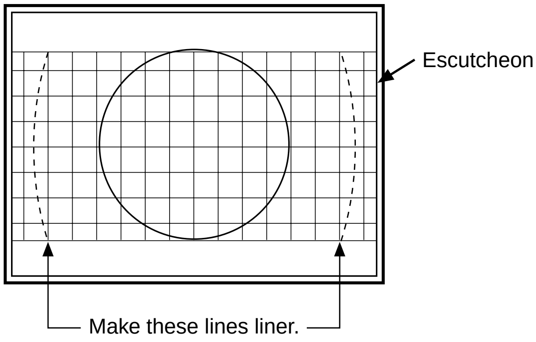
VERTICAL LINEARITY ADJUSTMENT (VERTICAL FREQUENCY: 60Hz)

Measuring Instruments	**Signal generator (Size adjustment signal, Crosshatch signal with circle pattern)**
Card (Slot)	**Component/RGB Input Card (Slot 1)**
Test Points	
Adjustment Points	**DM02 (Vertical Size), DM04 (Vertical Position), DM05 (Side Pin Distortion), DM06 (Corner Distortion (W)), DM07 (Corner Distortion (S)), DM08 (Parallelogram Distortion), DM09 (Trapezoidal Distortion), DM10 (Horizontal Arc Distortion), DX04 (60Hz Vertical Linearity (S Correction)), DX05 (60Hz Vertical Linearity (C Correction)) [Service Menu]**

Note: • **Perform the following adjustments after completing the Screen Voltage, X-Ray Protector and High-Voltage adjustments.**

1. Apply the 1080/60i size adjustment signal to INPUT A (Terminal Y on the Component/RGB Input Card).
2. Adjust **DM04** to set the vertical position of the image at the center of the CRT screen.
3. Adjust **DM02** to set the vertical amplitude of the image to **193mm**.
4. Apply the 1080/60i crosshatch signal with circle pattern to INPUT A.
5. Adjust **DX04** to set the sizes of the rectangles at the center of the image and those at the left and right ends to be identical.
6. Adjust **DX05** to set the sizes of the rectangles at the top and bottom of the image to be identical.
7. Ensure that the center position is not deviated. If it is, adjust **DM04** again.
8. Repeat adjustments in steps 1 to 7 until the center position and vertical linearity become optimum. If the current image distortion is serious, perform adjustments in steps 9 to 13 before re-performing steps 1 to 7.
9. Adjust **DM05** so that the second vertical lines from the left and right edges are linear.
10. Adjust **DM06 (W)** and **DM07 (S)** to optimize the corner distortions.
11. Adjust **DM08** to optimize the parallelogram distortion (observe the second vertical lines from the left and right edges as the reference).
12. Adjust **DM09** to optimize the trapezoidal distortion (observe the second vertical lines from the left and right edges as the reference).
13. Adjust **DM10** to optimize the horizontal arc distortion.



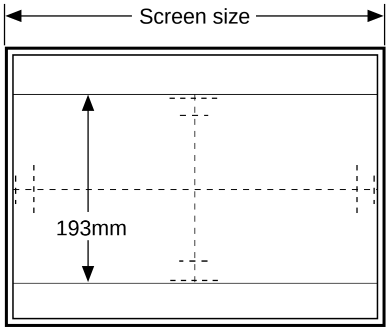


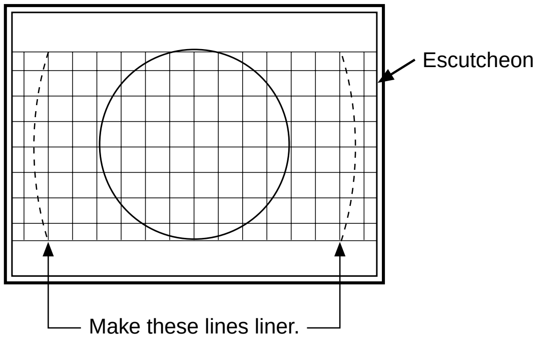
VERTICAL LINEARITY ADJUSTMENT (VERTICAL FREQUENCY: 50Hz)

Measuring Instruments	**Signal generator (Size adjustment signal, Crosshatch signal with circle pattern)**
Card (Slot)	**Component/RGB Input Card (Slot 1)**
Test Points	
Adjustment Points	**DS02 (Vertical Size), DS04 (Vertical Position), DS05 (Side Pin Distortion), DS06 (Corner Distortion (W)), DS07 (Corner Distortion (S)), DS08 (Parallelogram Distortion), DS09 (Trapezoidal Distortion), DS10 (Horizontal Arc Distortion), DX01 (50Hz Vertical Linearity (S Correction)), DX02 (50Hz Vertical Linearity (C Correction)) [Service Menu]**

Note: • Perform the following adjustments after completing the Screen Voltage, X-Ray Protector and High-Voltage adjustments.

1. Apply the 1080/48i (24pSF) size adjustment signal to INPUT A (Terminal Y on the Component/RGB Input Card).
2. Adjust **DS04** to set the vertical position of the image at the center of the CRT screen.
3. Adjust **DS02** to set the vertical amplitude of the image to **193mm**.
4. Apply the 1080/48i (24pSF) crosshatch signal with circle pattern to INPUT A.
5. Adjust **DX01** to set the sizes of the rectangles at the center of the image and those at the left and right ends to be identical.
6. Adjust **DX02** to set the sizes of the rectangles at the top and bottom of the image to be identical.
7. Ensure that the center position is not deviated. If it is, adjust **DS04** again.
8. Repeat adjustments in steps 1 to 7 until the center position and vertical linearity become optimum. If the current image distortion is serious, perform adjustments in steps 9 to 13 before re-performing steps 1 to 7.
9. Adjust **DS05** so that the second vertical lines from the left and right edges are linear.
10. Adjust **DS06 (W)** and **DS07 (S)** to optimize the corner distortions.
11. Adjust **DS08** to optimize the parallelogram distortion (observe the second vertical lines from the left and right edges as the reference).
12. Adjust **DS09** to optimize the trapezoidal distortion (observe the second vertical lines from the left and right edges as the reference).
13. Adjust **DS10** to optimize the horizontal arc distortion.





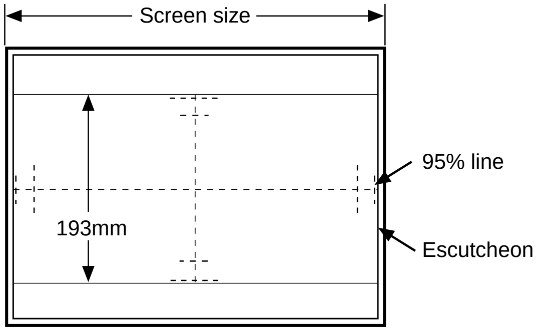
SIGNAL DEFLECTION SYSTEM ADJUSTMENTS

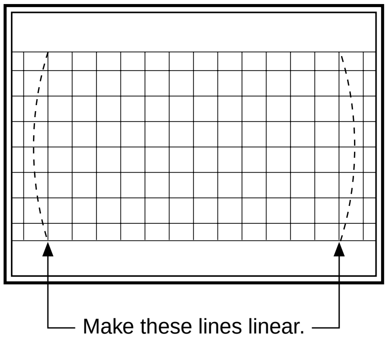
HORIZONTAL/VERTICAL IMAGE POSITION, IMAGE AMPLITUDE AND IMAGE DISTORTION ADJUSTMENTS (HDTV OVERSCAN MODE)

Measuring Instruments	**Signal generator (Size adjustment signal, Crosshatch signal)**
Card (Slot)	**Component/RGB Input Card (Slot 1)**
Test Points	
Adjustment Points	**D*01 (Horizontal Size), D*02 (Vertical Size), D*03 (Horizontal Position), D*04 (Vertical Position), D*05 (Side Pin Distortion), D*06 (Corner Distortion (W)), D*07 (Corner Distortion (S)), D*08 (Parallelogram Distortion), D*09 (Trapezoidal Distortion), D*10 (Horizontal Arc Distortion), D*11 (Vertical Linearity (S Correction)), D*12 (Vertical Linearity (C Correction)) [Service Menu]**

Notes:
- **Perform the following adjustments after completing the Reference value of the vertical linearity adjustments.**
- **The adjusted data becomes the reference value for the HDTV underscan mode. When the data is changed, it is required to re-adjust the underscan data for the same adjustment signal.**

1. Apply the 1080/60i size adjustment signal to INPUT A (Terminal Y on the Component/RGB Input Card).
2. Set the CONTRAST and BRIGHT potentiometers on the front panel to the center click positions.
3. Adjust **DM04** in the Service Menu to set the vertical position of the image at the center of the CRT screen.
4. Adjust **DM02** to set the vertical amplitude of the image to **193mm**.
5. Apply the 1080/60i crosshatch signal to INPUT A.
6. Adjust **DM11** to set the sizes of the rectangles at the center of the image and those at the left and right ends to be identical.
7. Adjust **DM12** to set the sizes of the rectangles at the center of the image and those at the top and bottom to be identical.
8. Ensure that the center position is not deviated. If it is, adjust **DM04** again.
9. Adjust **DM11**, **DM12** and **DM04** repeatedly until the center position and vertical linearity are optimized.
10. Adjust **DM09** to optimize the trapezoidal distortion (observe the second vertical lines from the left and right edges as the reference).
11. Adjust **DM08** to optimize the parallelogram distortion (observe the second vertical lines from the left and right edges as the reference).
12. Adjust **DM10** to optimize the horizontal arc distortion.
13. Adjust **DM05** so that the second vertical lines from the left and right edges are linear.
14. If there is an extreme corner S-shape distortion, adjust **DM07** to optimize it (this adjustment is usually unnecessary).
15. If there is an extreme corner W-shape distortion, adjust **DM06** to optimize it (this adjustment is usually unnecessary).
16. Apply the 1080/60i size adjustment signal to INPUT A.
17. Ensure that the vertical amplitude of the image is **193mm**. If it is not, adjust **DM02** again.
18. Adjust **DM03** so that the horizontal position of the image comes at the center of the CRT screen.
19. Adjust the horizontal image amplitude with **DM01** to match the 95% line of the size adjustment signal onto the edge of the escutcheon.
20. Vary the adjustment signal and adjustment data, and re-perform adjustments in steps 1 to 19 above (see Table 8).





Adjustment Step No.	Adjustment signal	Adjustment Data
1	1080/60i	DM
2	1080/48i (24pSF)	DS
3	720/60p	DU

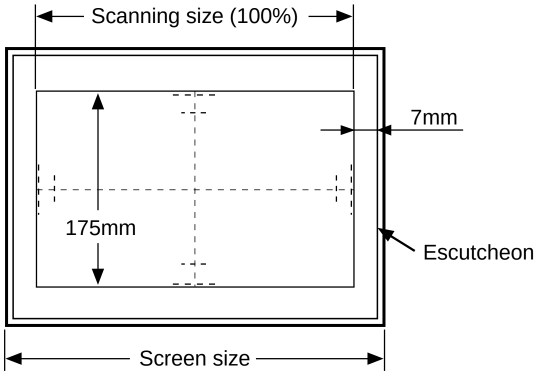
Table 8

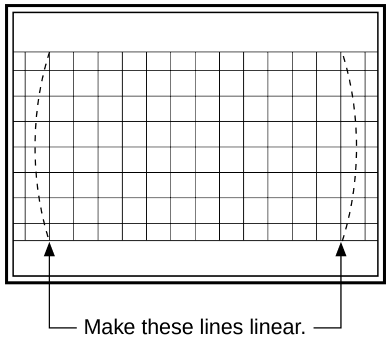
HORIZONTAL/VERTICAL IMAGE POSITION, IMAGE AMPLITUDE AND IMAGE DISTORTION ADJUSTMENTS (HDTV UNDERSCAN MODE)

Measuring Instruments	**Signal generator (Size adjustment signal, Crosshatch signal)**
Card (Slot)	**Component/RGB Input Card (Slot 1)**
Test Points	
Adjustment Points	**D*01 (Horizontal Size), D*02 (Vertical Size), D*03 (Horizontal Position), D*04 (Vertical Position), D*05 (Side Pin Distortion), D*06 (Corner Distortion (W)), D*07 (Corner Distortion (S)), D*08 (Parallelogram Distortion), D*09 (Trapezoidal Distortion), D*10 (Horizontal Arc Distortion), D*11 (Vertical Linearity (S Correction)), D*12 (Vertical Linearity (C Correction)) [Service Menu]**

Notes:
- **Perform the following adjustments after completing the Reference Mode (HDTV overscan mode) adjustments.**
- **The data adjusted for the reference mode becomes the reference value for the HDTV underscan mode. When the data of the reference mode is changed, it is required to re-adjust the underscan data for the same adjustment signal.**

1. Apply the 1080/60i size adjustment signal to INPUT A (Terminal Y on the Component/RGB Input Card).
2. Set the CONTRAST and BRIGHT potentiometers on the front panel to the center click positions.
3. Press the UNDER SCAN button on the front panel to set the scanning size to underscanning.
4. Adjust **DN04** in the Service Menu to set the vertical position of the image at the center of the CRT screen.
5. Adjust **DN02** to set the vertical amplitude of the image to **175mm**.
6. Apply the 1080/60i crosshatch signal to INPUT A.
7. Adjust **DN11** to set the sizes of the rectangles at the center of the image and those at the left and right ends to be identical.
8. Adjust **DN12** to set the sizes of the rectangles at the center of the image and those at the top and bottom to be identical.
9. Ensure that the center position is not deviated. If it is, adjust **DN04** again.
10. Adjust **DN11**, **DN12** and **DN04** repeatedly until the center position and vertical linearity are optimized.
11. Adjust **DN09** to optimize the trapezoidal distortion (observe the second vertical lines from the left and right edges as the reference).
12. Adjust **DN08** to optimize the parallelogram distortion (observe the second vertical lines from the left and right edges as the reference).
13. Adjust **DN10** to optimize the horizontal arc distortion.
14. Adjust **DN05** so that the second vertical lines from the left and right edges are linear.
15. If there is an extreme corner S-shape distortion, adjust **DN07** to optimize it (this adjustment is usually unnecessary).
16. If there is an extreme corner W-shape distortion, adjust **DN06** to optimize it (this adjustment is usually unnecessary).
17. Apply the 1080/60i size adjustment signal to INPUT A.
18. Ensure that the vertical amplitude of the image is **175mm**. If it is not, adjust **DN02** again.
19. Adjust **DN03** so that the horizontal position of the image comes at the center of the CRT screen.
20. Adjust **DN01** to set the size adjustment signals at **7mm** from the escutcheons on the left and right side of the image.
21. Vary the adjustment signal and adjustment data, and re-perform adjustments in steps 1 to 20 above (see Table 9).





Adjustment Step No.	Adjustment signal	Adjustment Data
1	1080/60i	DN
2	1080/48i (24pSF)	DT
3	720/60p	DV

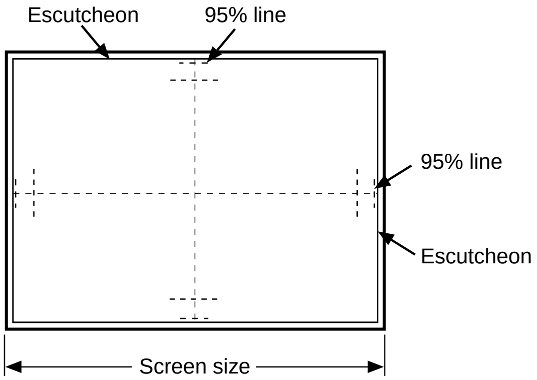
Table 9

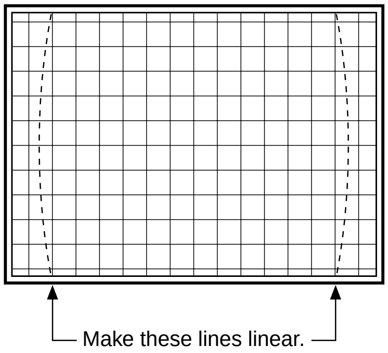
HORIZONTAL/VERTICAL IMAGE POSITION, IMAGE AMPLITUDE AND IMAGE DISTORTION ADJUSTMENTS (SDTV OVERSCAN 4:3 MODE)

Measuring Instruments	**Signal generator (Size adjustment signal, Crosshatch signal)**
Card (Slot)	**Component/RGB Input Card (Slot 1)**
Test Points	
Adjustment Points	**D*01 (Horizontal Size), D*02 (Vertical Size), D*03 (Horizontal Position), D*04 (Vertical Position), D*05 (Side Pin Distortion), D*06 (Corner Distortion (W)), D*07 (Corner Distortion (S)), D*08 (Parallelogram Distortion), D*09 (Trapezoidal Distortion), D*10 (Horizontal Arc Distortion), D*11 (Vertical Linearity (S Correction)), D*12 (Vertical Linearity (C Correction)) [Service Menu]**

Note: • **The adjusted data becomes the reference value for the SDTV underscan 4:3 mode and SDTV overscan/underscan 16:9 modes. When the data is changed, it is required to re-adjust the underscan data and SDTV overscan/underscan 16:9 mode data for the same adjustment signal.**

1. Apply the 480/60i size adjustment signal to INPUT A (Terminal Y on the Component/RGB Input Card).
2. Set the CONTRAST and BRIGHT potentiometers on the front panel to the center click positions.
3. Adjust **DE04** in the Service Menu to set the vertical position of the image at the center of the CRT screen.
4. Adjust the horizontal image amplitude with **DE02** to match the 95% line of the size adjustment signal onto the edge of the escutcheon.
5. Apply the 480/60i crosshatch signal to INPUT A.
6. Adjust **DE11** to set the sizes of the rectangles at the center of the image and those at the left and right ends to be identical.
7. Adjust **DE12** to set the sizes of the rectangles at the center of the image and those at the top and bottom to be identical.
8. Ensure that the center position is not deviated. If it is, adjust **DE04** again.
9. Adjust **DE11**, **DE12** and **DE04** repeatedly until the center position and vertical linearity are optimized.
10. Adjust **DE09** to optimize the trapezoidal distortion (observe the second vertical lines from the left and right edges as the reference).
11. Adjust **DE08** to optimize the parallelogram distortion (observe the second vertical lines from the left and right edges as the reference).
12. Adjust **DE10** to optimize the horizontal arc distortion.
13. Adjust **DE05** so that the second vertical lines from the left and right edges are linear.
14. If there is an extreme corner S-shape distortion, adjust **DE07** to optimize it (this adjustment is usually unnecessary).
15. If there is an extreme corner W-shape distortion, adjust **DE06** to optimize it (this adjustment is usually unnecessary).
16. Apply the 480/60i size adjustment signal to INPUT A.
17. Observe the vertical amplitude of the image. If it is dislocated, adjust **DE02** again.
18. Adjust **DE03** so that the horizontal position of the image comes at the center of the CRT screen.
19. Adjust the horizontal image amplitude with **DE01** to match the 95% line of the size adjustment signal onto the edge of the escutcheon.
20. Vary the adjustment signal and adjustment data, and re-perform adjustments in steps 1 to 19 above (see Table 10).





Adjustment Step No.	Adjustment signal	Adjustment Data
1	480/60i	DE
2	480/60p	DI
3	576/50i	DG

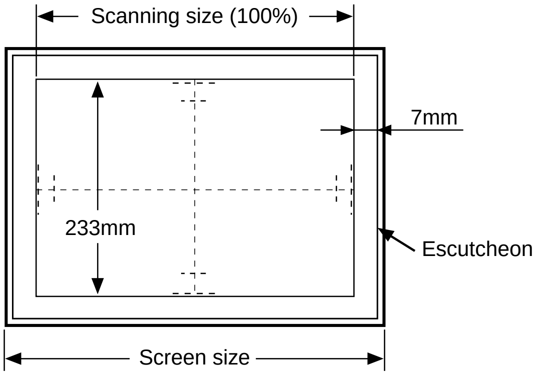
Table 10

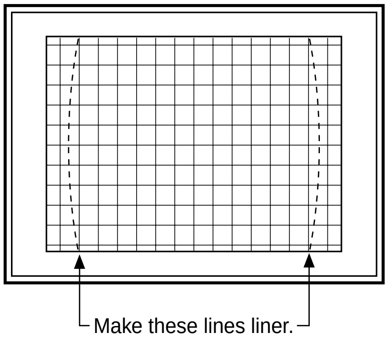
HORIZONTAL/VERTICAL IMAGE POSITION, IMAGE AMPLITUDE AND IMAGE DISTORTION ADJUSTMENTS (SDTV UNDERSCAN 4:3 MODE)

Measuring Instruments	**Signal generator (Size adjustment signal, Crosshatch signal)**
Card (Slot)	**Component/RGB Input Card (Slot 1)**
Test Points	
Adjustment Points	**D*01 (Horizontal Size), D*02 (Vertical Size), D*03 (Horizontal Position), D*04 (Vertical Position), D*05 (Side Pin Distortion), D*06 (Corner Distortion (W)), D*07 (Corner Distortion (S)), D*08 (Parallelogram Distortion), D*09 (Trapezoidal Distortion), D*10 (Horizontal Arc Distortion), D*11 (Vertical Linearity (S Correction)), D*12 (Vertical Linearity (C Correction)) [Service Menu]**

Notes:
- **Perform the following adjustments after completing the Reference Mode (SDTV overscan 4:3 mode) adjustments.**
- **The data adjusted for the reference mode becomes the reference value for the SDTV underscan 4:3 mode and SDTV overscan/underscan 16:9 modes. When the data of the reference mode is changed, it is required to re-adjust the underscan data and SDTV overscan/underscan 16:9 mode data for the same adjustment signal.**

1. Apply the 480/60i size adjustment signal to INPUT A (Terminal Y on the Component/RGB Input Card).
2. Set the CONTRAST and BRIGHT potentiometers on the front panel to the center click positions.
3. Press the UNDER SCAN button on the front panel to set the scanning size to underscanning.
4. Adjust **DF04** in the Service Menu to set the vertical position of the image at the center of the CRT screen.
5. Adjust **DF02** to set the vertical amplitude of the image to **233mm**.
6. Apply the 480/60i crosshatch signal to INPUT A.
7. Adjust **DF11** to set the sizes of the rectangles at the center of the image and those at the left and right ends to be identical.
8. Adjust **DF12** to set the sizes of the rectangles at the center of the image and those at the top and bottom to be identical.
9. Ensure that the center position is not deviated. If it is, adjust **DF04** again.
10. Adjust **DF11**, **DF12** and **DF04** repeatedly until the center position and vertical linearity are optimized.
11. Adjust **DF09** to optimize the trapezoidal distortion (observe the second vertical lines from the left and right edges as the reference).
12. Adjust **DF08** to optimize the parallelogram distortion (observe the second vertical lines from the left and right edges as the reference).
13. Adjust **DF10** to optimize the horizontal arc distortion.
14. Adjust **DF05** so that the second vertical lines from the left and right edges are linear.
15. If there is an extreme corner S-shape distortion, adjust **DF07** to optimize it (this adjustment is usually unnecessary).
16. If there is an extreme corner W-shape distortion, adjust **DF06** to optimize it (this adjustment is usually unnecessary).
17. Apply the 480/60i size adjustment signal to INPUT A.
18. Ensure that the vertical amplitude of the image is **233mm**. If it is not, adjust **DF02** again.
19. Adjust **DF03** so that the horizontal position of the image comes at the center of the CRT screen.
20. Adjust **DF01** to set the size adjustment signals at **7mm** from the escutcheons on the left and right side of the image.
21. Vary the adjustment signal and adjustment data, and re-perform adjustments in steps 1 to 20 above (see Table 11).





Adjustment Step No.	Adjustment signal	Adjustment Data
1	480/60i	DF
2	480/60p	DJ
3	576/50i	DH

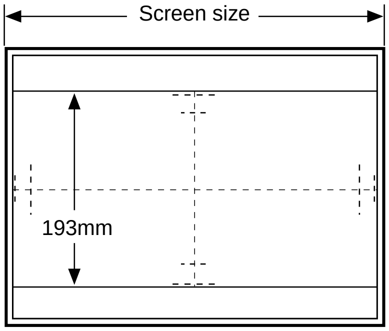
Table 11

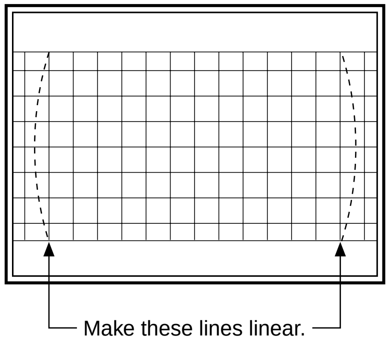
HORIZONTAL/VERTICAL IMAGE POSITION, IMAGE AMPLITUDE AND SIDE PIN DISTORTION ADJUSTMENTS (SDTV OVERSCAN 16:9 MODE)

Measuring Instruments	**Signal generator (Size adjustment signal, Crosshatch signal)**
Card (Slot)	**Component/RGB Input Card (Slot 1)**
Test Points	
Adjustment Points	**DW** (Vertical Size), DW** (Vertical Position), DW** (Side Pin Distortion), CE** (Corner Distortion (W)), CE** (Corner Distortion (S)), CE** (Parallelogram Distortion), CE** (Trapezoidal Distortion), CE** (Horizontal Arc Distortion) [Service Menu]**

Notes:
- **Perform the following adjustments after completing the Reference Mode (SDTV overscan 4:3 mode) adjustments.**
- **The data adjusted for the reference mode becomes the reference value for the SDTV underscan 4:3 mode and SDTV overscan/underscan 16:9 modes. When the data of the reference mode is changed, it is required to re-adjust the underscan data and SDTV overscan/underscan 16:9 mode data for the same adjustment signal.**
- **The corner distortions (W) & (S), parallelogram distortion, trapezoidal distortion and horizontal arc distortion adjustment data for this adjustment are common to those in the SDTV overscan 16:9 mode and the SDTV underscan 16:9 mode adjustments. This adjustment data needs to be adjusted in either mode.**
- **The corner distortions (W) & (S), parallelogram distortion, trapezoidal distortion and horizontal arc distortion adjustment data for this adjustment are common to those in the 480/60i and NTSC signal or 576/50i and PAL signal adjustments. This adjustment data needs to be adjusted with either signal.**

1. Apply the 480/60i size adjustment signal to INPUT A (Terminal Y on the Component/RGB Input Card).
2. Press the ASPECT button on the front panel to set the scanning size to 16:9 mode.
3. Set the CONTRAST and BRIGHT potentiometers on the front panel to the center click positions.
4. Adjust **DW14** in the Service Menu to set the vertical position of the image at the center of the CRT screen.
5. Adjust **DW13** to set the vertical amplitude of the image to **193mm**.
6. Apply the 480/60i crosshatch signal to INPUT A.
7. Adjust **CE08** to optimize the trapezoidal distortion (observe the second vertical lines from the left and right edges as the reference).
8. Adjust **CE07** to optimize the parallelogram distortion (observe the second vertical lines from the left and right edges as the reference).
9. Adjust **CE09** to optimize the horizontal arc distortion.
10. Adjust **DW15** so that the second vertical lines from the left and right edges are linear.
11. If there is an extreme corner S-shape distortion, adjust **CE06** to optimize it (this adjustment is usually unnecessary).
12. If there is an extreme corner W-shape distortion, adjust **CE05** to optimize it (this adjustment is usually unnecessary).
13. Apply the 480/60i size adjustment signal to INPUT A.
14. Ensure that the vertical amplitude of the image is **193mm**. If it is not, adjust **DW13** again.
15. Adjust **DW14** so that the vertical position of the image comes at the center of the CRT screen.
16. Vary the adjustment signal and adjustment data, and re-perform adjustments in steps 1 to 15 above (see Table 12).





Adjustment Step No.	Adjustment Signal	Adjustment Data							
		Vertical Position	Vertical size	Side Pin Distortion	Corner Distortion (W)	Corner Distortion (S)	Parallelogram Distortion	Trapezoidal Distortion	Horizontal Arc Distortion
1	480/60i	DW14	DW13	DW15	CE05	CE06	CE07	CE08	CE09
2	480/60p	DW26	DW25	DW27	CE15	CE16	CE17	CE18	CE19
3	576/50i	DW20	DW19	DW21	CE10	CE11	CE12	CE13	CE14

Table 12

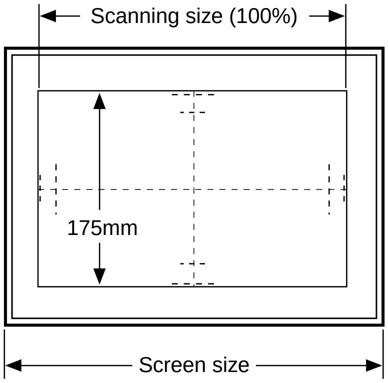
HORIZONTAL/VERTICAL IMAGE POSITION, IMAGE AMPLITUDE AND SIDE PIN DISTORTION ADJUSTMENTS (SDTV UNDERSCAN 16:9 MODE)

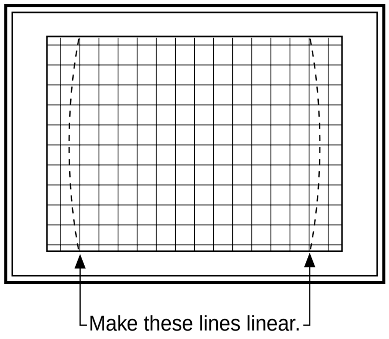
Measuring Instruments	**Signal generator (Size adjustment signal, Crosshatch signal)**
Card (Slot)	**Component/RGB Input Card (Slot 1)**
Test Points	
Adjustment Points	**DW** (Vertical Size), DW** (Vertical Position), DW** (Side Pin Distortion), CE** (Corner Distortion (W)), CE** (Corner Distortion (S)), CE** (Parallelogram Distortion), CE** (Trapezoidal Distortion), CE** (Horizontal Arc Distortion) [Service Menu]**

Notes:

- **Perform the following adjustments after completing the Reference Mode (SDTV overscan 4:3 mode) and SDTV underscan 4:3 mode adjustments.**
- **The data adjusted for the reference mode becomes the reference value for the SDTV underscan 4:3 mode and SDTV overscan/underscan 16:9 modes. When the data of the reference mode is changed, it is required to re-adjust the underscan data and SDTV overscan/underscan 16:9 mode data for the same adjustment signal.**
- **The corner distortions (W) & (S), parallelogram distortion, trapezoidal distortion and horizontal arc distortion adjustment data for this adjustment are common to those in the SDTV overscan 16:9 mode and the SDTV underscan 16:9 mode adjustments. This adjustment data needs to be adjusted in either mode.**
- **The corner distortions (W) & (S), parallelogram distortion, trapezoidal distortion and horizontal arc distortion adjustment data for this adjustment are common to those in the 480/60i and NTSC signal or 576/50i and PAL signal adjustments. This adjustment data needs to be adjusted with either signal.**

1. Apply the 480/60i size adjustment signal to INPUT A (Terminal Y on the Component/RGB Input Card).
2. Press the ASPECT and UNDER SCAN buttons on the front panel to set the scanning size to underscanning for the 16:9 ratio.
3. Set the CONTRAST and BRIGHT potentiometers on the front panel to the center click positions.
4. Adjust **DW17** in the Service Menu to set the vertical position of the image at the center of the CRT screen.
5. Adjust **DW16** to set the vertical amplitude of the image to **175mm**.
6. Apply the 480/60i crosshatch signal to INPUT A.
7. Adjust **CE08** to optimize the trapezoidal distortion (observe the second vertical lines from the left and right edges as the reference).
8. Adjust **CE07** to optimize the parallelogram distortion (observe the second vertical lines from the left and right edges as the reference).
9. Adjust **CE09** to optimize the horizontal arc distortion.
10. Adjust **DW18** so that the second vertical lines from the left and right edges are linear.
11. If there is an extreme corner S-shape distortion, adjust **CE06** to optimize it (this adjustment is usually unnecessary).
12. If there is an extreme corner W-shape distortion, adjust **CE05** to optimize it (this adjustment is usually unnecessary).
13. Apply the 480/60i size adjustment signal to INPUT A.
14. Ensure that the vertical amplitude of the image is **175mm**. If it is not, adjust **DW16** again.
15. Adjust **DW17** so that the vertical position of the image comes at the center of the CRT screen.
16. Vary the adjustment signal and adjustment data, and re-perform adjustments in steps 1 to 15 above (see Table 13).





Adjustment Step No.	Adjustment Signal	Adjustment Data							
		Vertical Position	Vertical size	Side Pin Distortion	Corner Distortion (W)	Corner Distortion (S)	Parallelogram Distortion	Trapezoidal Distortion	Horizontal Arc Distortion
1	480/60i	DW17	DW16	DW18	CE05	CE06	CE07	CE08	CE09
2	480/60p	DW29	DW28	DW30	CE15	CE16	CE17	CE18	CE19
3	576/50i	DW23	DW22	DW24	CE10	CE11	CE12	CE13	CE14

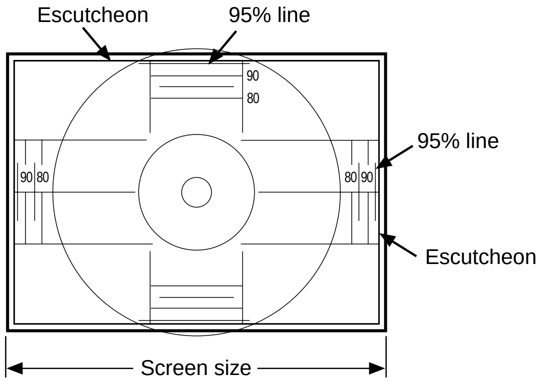
Table 13

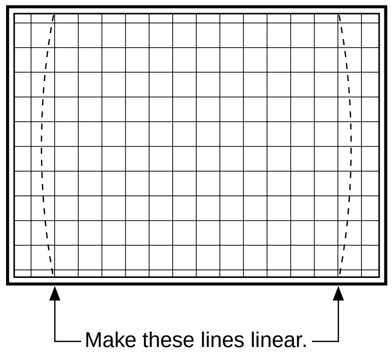
HORIZONTAL/VERTICAL IMAGE POSITION, IMAGE AMPLITUDE AND IMAGE DISTORTION ADJUSTMENTS (NTSC/PAL OVERSCAN 4:3 MODE)

Measuring Instruments	**Signal generator (Mono-scope signal, Crosshatch signal)**
Card (Slot)	**NTSC/PAL Video Input Card (Slot 2)**
Test Points	
Adjustment Points	**D*01 (Horizontal Size), D*02 (Vertical Size), D*03 (Horizontal Position), D*04 (Vertical Position), D*05 (Side Pin Distortion), D*06 (Corner Distortion (W)), D*07 (Corner Distortion (S)), D*08 (Parallelogram Distortion), D*09 (Trapezoidal Distortion), D*10 (Horizontal Arc Distortion), D*11 (Vertical Linearity (S Correction)), D*12 (Vertical Linearity (C Correction)) [Service Menu]**

Notes:
- **Perform the following adjustments after completing the Reference value for the vertical linearity adjustments.**
- **The adjusted data becomes the reference value for the NTSC/PAL underscan 4:3 mode and NTSC/PAL overscan/underscan 16:9 modes. When the data is changed, it is required to re-adjust the underscan data and NTSC/PAL overscan/underscan 16:9 mode data for the same adjustment signal.**

1. Apply the NTSC mono-scope signal to INPUT C (Terminal VIDEO1 on the NTSC/PAL Video Input Card).
2. Set the CONTRAST and BRIGHT potentiometers on the front panel to the center click positions.
3. Adjust **DA04** in the Service Menu to set the vertical position of the image at the center of the CRT screen.
4. Adjust **DA02** to match the 95% line of the vertical image amplitude onto the edge of the escutcheon.
5. Apply the NTSC crosshatch signal to INPUT C.
6. Adjust **DA11** to set the sizes of the rectangles at the center of the image and those at the left and right ends to be identical.
7. Adjust **DA12** to set the sizes of the rectangles at the center of the image and those at the top and bottom to be identical.
8. Ensure that the center position is not deviated. If it is, adjust **DA04** again.
9. Adjust **DA11**, **DA12** and **DA04** repeatedly until the center position and vertical linearity are optimized.
10. Adjust **DA09** to optimize the trapezoidal distortion (observe the second vertical lines from the left and right edges as the reference).
11. Adjust **DA08** to optimize the parallelogram distortion (observe the second vertical lines from the left and right edges as the reference).
12. Adjust **DA10** to optimize the horizontal arc distortion.
13. Adjust **DA05** so that the second vertical lines from the left and right edges are linear.
14. If there is an extreme corner S-shape distortion, adjust **DA07** to optimize it (this adjustment is usually unnecessary).
15. If there is an extreme corner W-shape distortion, adjust **DA06** to optimize it (this adjustment is usually unnecessary).
16. Apply the NTSC mono-scope signal to INPUT C.
17. Observe the vertical amplitude of the image. If it is dislocated, adjust **DA02** again.
18. Adjust **DA03** so that the horizontal position of the image comes at the center of the CRT screen.
19. Adjust **DA01** to match the 95% line of the vertical the image amplitude onto the edge of the escutcheon.
20. Vary the adjustment signal and adjustment data, and re-perform adjustments in steps 1 to 19 above (see Table 14).





Adjustment Step No.	Adjustment signal	Adjustment Data
1	NTSC	DA
2	PAL	DC

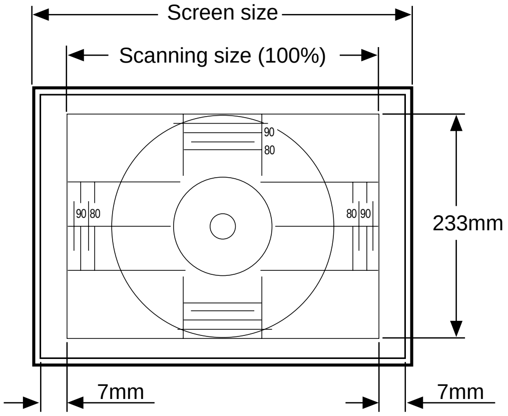
Table 14

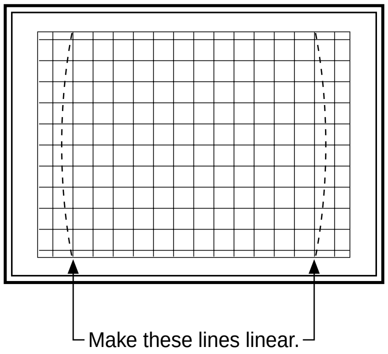
HORIZONTAL/VERTICAL IMAGE POSITION, IMAGE AMPLITUDE AND IMAGE DISTORTION ADJUSTMENTS (NTSC/PAL UNDERSCAN 4:3 MODE)

Measuring Instruments	**Signal generator (Mono-scope signal, Crosshatch signal)**
Card (Slot)	**NTSC/PAL Video Input Card (Slot 2)**
Test Points	
Adjustment Points	**D*01 (Horizontal Size), D*02 (Vertical Size), D*03 (Horizontal Position), D*04 (Vertical Position), D*05 (Side Pin Distortion), D*06 (Corner Distortion (W)), D*07 (Corner Distortion (S)), D*08 (Parallelogram Distortion), D*09 (Trapezoidal Distortion), D*10 (Horizontal Arc Distortion), D*11 (Vertical Linearity (S Correction)), D*12 (Vertical Linearity (C Correction)) [Service Menu]**

Notes:
- **Perform the following adjustments after completing the Reference Mode (NTSL/PAL overscan 4:3 mode) adjustments.**
- **The data adjusted for the reference mode becomes the reference value for the NTSC/PAL underscan 4:3 mode and NTSC/PAL overscan/underscan 16:9 modes. When the data of the reference mode is changed, it is required to re-adjust the underscan data and NTSC/PAL overscan/underscan 16:9 mode data for the same adjustment signal.**

1. Apply the NTSC mono-scope signal to INPUT C (Terminal VIDEO1 on the NTSC/PAL Video Input Card).
2. Set the CONTRAST and BRIGHT potentiometers on the front panel to the center click positions.
3. Press the UNDER SCAN button on the front panel to set the scanning size to underscanning.
4. Adjust **DB04** in the Service Menu to set the vertical position of the image at the center of the CRT screen.
5. Adjust **DB02** to set the vertical amplitude of the image to **233mm**.
6. Apply the NTSC crosshatch signal to INPUT C.
7. Adjust **DB11** to set the sizes of the rectangles at the center of the image and those at the left and right ends to be identical.
8. Adjust **DB12** to set the sizes of the rectangles at the center of the image and those at the top and bottom to be identical.
9. Ensure that the center position is not deviated. If it is, adjust **DB04** again.
10. Adjust **DB11**, **DB12** and **DB04** repeatedly until the center position and vertical linearity are optimized.
11. Adjust **DB09** to optimize the trapezoidal distortion (observe the second vertical lines from the left and right edges as the reference).
12. Adjust **DB08** to optimize the parallelogram distortion (observe the second vertical lines from the left and right edges as the reference).
13. Adjust **DB10** to optimize the horizontal arc distortion.
14. Adjust **DB05** so that the second vertical lines from the left and right edges are linear.
15. If there is an extreme corner S-shape distortion, adjust **DB07** to optimize it (this adjustment is usually unnecessary).
16. If there is an extreme corner W-shape distortion, adjust **DB06** to optimize it (this adjustment is usually unnecessary).
17. Apply the NTSC mono-scope signal to INPUT C.
18. Ensure that the vertical amplitude of the image is **233mm**. If it is not, adjust **DB02** again.
19. Adjust **DB03** so that the horizontal position of the image comes at the center of the CRT screen.
20. Adjust **DB01** to set the mono-scope signals at **7mm** from the escutcheons on the left and right side of the image.
21. Vary the adjustment signal and adjustment data, and re-perform adjustments in steps 1 to 20 above (see Table 15).





Adjustment Step No.	Adjustment signal	Adjustment Data
1	NTSC	DB
2	PAL	DD

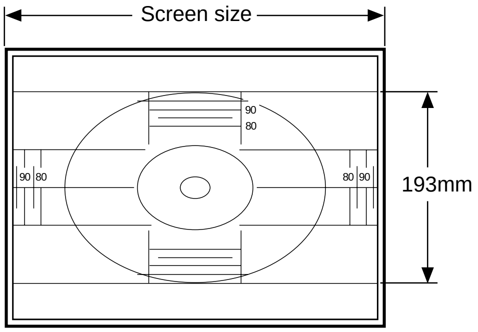
Table 15

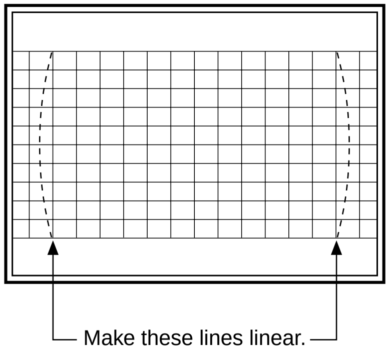
VERTICAL IMAGE POSITION, VERTICAL IMAGE AMPLITUDE AND SIDE PIN DISTORTION ADJUSTMENTS (NTSC/PAL OVERSCAN 16:9 MODE)

Measuring Instruments	**Signal generator (Mono-scope signal, Crosshatch signal)**
Card (Slot)	**NTSC/PAL Video Input Card (Slot 2)**
Test Points	
Adjustment Points	**DW** (Vertical Size), DW** (Vertical Position), DW** (Side Pin Distortion), CE** (Corner Distortion (W)), CE** (Corner Distortion (S)), CE** (Parallelogram Distortion), CE** (Trapezoidal Distortion), CE** (Horizontal Arc Distortion) [Service Menu]**

Notes:
- **Perform the following adjustments after completing the Reference Mode (NTSL/PAL overscan 4:3 mode) adjustment.**
- **The data adjusted for the reference mode becomes the reference value for the NTSC/PAL underscan 4:3 mode and NTSC/PAL overscan/underscan 16:9 modes. When the data of the reference mode is changed, it is required to re-adjust the underscan data and NTSC/PAL overscan/underscan 16:9 mode data for the same adjustment signal.**
- **The corner distortions (W) & (S), parallelogram distortion, trapezoidal distortion and horizontal arc distortion adjustment data for this adjustment are common to those in the NTSC/PAL overscan 16:9 mode and the NTSC/PAL underscan 16:9 mode adjustments. This adjustment data needs to be adjusted in either mode.**
- **The corner distortions (W) & (S), parallelogram distortion, trapezoidal distortion and horizontal arc distortion adjustment data for this adjustment are common to those in the 480/60i and NTSC signal or 576/50i and PAL signal adjustments. This adjustment data needs to be adjusted with either signal.**

1. Apply the NTSC mono-scope signal to INPUT C (Terminal VIDEO1 on the NTSC/PAL Video Input Card).
2. Press the ASPECT button on the front panel to set the scanning size to 16:9 mode.
3. Set the CONTRAST and BRIGHT potentiometers on the front panel to the center click positions.
4. Adjust **DW02** in the Service Menu to set the vertical position of the image at the center of the CRT screen.
5. Adjust **DW01** to set the vertical amplitude of the image to **193mm**.
6. Apply the NTSC crosshatch signal to INPUT C.
7. Adjust **CE08** to optimize the trapezoidal distortion (observe the second vertical lines from the left and right edges as the reference).
8. Adjust **CE07** to optimize the parallelogram distortion (observe the second vertical lines from the left and right edges as the reference).
9. Adjust **CE09** to optimize the horizontal arc distortion.
10. Adjust **DW03** so that the second vertical lines from the left and right edges are linear.
11. If there is an extreme corner S-shape distortion, adjust **CE06** to optimize it (this adjustment is usually unnecessary).
12. If there is an extreme corner W-shape distortion, adjust **CE05** to optimize it (this adjustment is usually unnecessary).
13. Apply the NTSC mono-scope signal to INPUT C.
14. Ensure that the vertical amplitude of the image is **193mm**. If it is not, adjust **DW01** again.
15. Adjust **DW02** so that the vertical position of the image comes at the center of the CRT screen.
16. Vary the adjustment signal and adjustment data, and re-perform adjustments in steps 1 to 15 above (see Table 16).





Adjustment Step No.	Adjustment Signal	Adjustment Data							
		Vertical Position	Vertical size	Side Pin Distortion	Corner Distortion (W)	Corner Distortion (S)	Parallelogram Distortion	Trapezoidal Distortion	Horizontal Arc Distortion
1	NTSC	DW02	DW01	DW03	CE05	CE06	CE07	CE08	CE09
2	PAL	DW08	DW07	DW09	CE10	CE11	CE12	CE13	CE14

Table 16

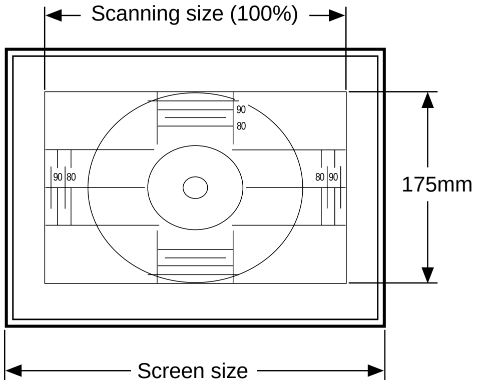
VERTICAL IMAGE POSITION, VERTICAL IMAGE AMPLITUDE AND SIDE PIN DISTORTION ADJUSTMENTS (NTSC/PAL UNDERSCAN 16:9 MODE)

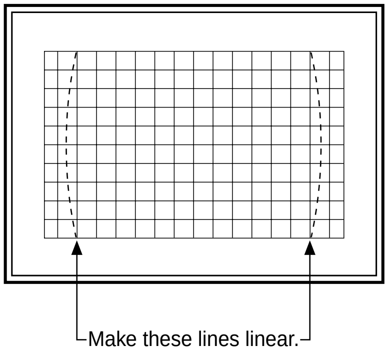
Measuring Instruments	**Signal generator (Mono-scope signal, Crosshatch signal)**
Card (Slot)	**NTSC/PAL Video Input Card (Slot 2)**
Test Points	
Adjustment Points	**DW** (Vertical Size), DW** (Vertical Position), DW** (Side Pin Distortion), CE** (Corner Distortion (W)), CE** (Corner Distortion (S)), CE** (Parallelogram Distortion), CE** (Trapezoidal Distortion), CE** (Horizontal Arc Distortion) [Service Menu]**

Notes:

- **Perform the following adjustments after completing the Reference Mode (NTSL/PAL overscan 4:3 mode) and NTSC/PAL underscan 4:3 mode adjustments.**
- **The data adjusted for the reference mode becomes the reference value for the NTSC/PAL underscan 4:3 mode and NTSC/PAL overscan/underscan 16:9 modes. When the data of the reference mode is changed, it is required to re-adjust the underscan data and NTSC/PAL overscan/underscan 16:9 mode data for the same adjustment signal.**
- **The corner distortions (W) & (S), parallelogram distortion, trapezoidal distortion and horizontal arc distortion adjustment data for this adjustment are common to those in the NTSC/PAL overscan 16:9 mode and the NTSC/PAL underscan 16:9 mode adjustments. This adjustment data needs to be adjusted in either mode.**
- **The corner distortions (W) & (S), parallelogram distortion, trapezoidal distortion and horizontal arc distortion adjustment data for this adjustment are common to those in the 480/60i and NTSC signal or 576/50i and PAL signal adjustments. This adjustment data needs to be adjusted with either signal.**

1. Apply the NTSC mono-scope signal to INPUT C (Terminal VIDEO1 on the NTSC/PAL Video Input Card).
2. Press the ASPECT and UNDER SCAN buttons on the front panel to set the scanning size to underscanning for the 16:9 ratio.
3. Set the CONTRAST and BRIGHT potentiometers on the front panel to the center click positions.
4. Adjust **DW05** in the Service Menu to set the vertical position of the image at the center of the CRT screen.
5. Adjust **DW04** to set the vertical amplitude of the image to **175mm**.
6. Apply the NTSC crosshatch signal to INPUT C.
7. Adjust **CE08** to optimize the trapezoidal distortion (observe the second vertical lines from the left and right edges as the reference).
8. Adjust **CE07** to optimize the parallelogram distortion (observe the second vertical lines from the left and right edges as the reference).
9. Adjust **CE09** to optimize the horizontal arc distortion.
10. Adjust **DW06** so that the second vertical lines from the left and right edges are linear.
11. If there is an extreme corner S-shape distortion, adjust **CE06** to optimize it (this adjustment is usually unnecessary).
12. If there is an extreme corner W-shape distortion, adjust **CE05** to optimize it (this adjustment is usually unnecessary).
13. Apply the NTSC mono-scope signal to INPUT C.
14. Ensure that the vertical amplitude of the image is **175mm**. If it is not, adjust **DW04** again.
15. Adjust **DW05** so that the vertical position of the image comes at the center of the CRT screen.
16. Vary the adjustment signal and adjustment data, and re-perform adjustments in steps 1 to 15 above (see Table 17).





Adjustment Step No.	Adjustment Signal	Adjustment Data							
		Vertical Position	Vertical size	Side Pin Distortion	Corner Distortion (W)	Corner Distortion (S)	Parallelogram Distortion	Trapezoidal Distortion	Horizontal Arc Distortion
1	NTSC	DW05	DW04	DW06	CE05	CE06	CE07	CE08	CE09
2	PAL	DW11	DW10	DW12	CE10	CE11	CE12	CE13	CE14

Table 17

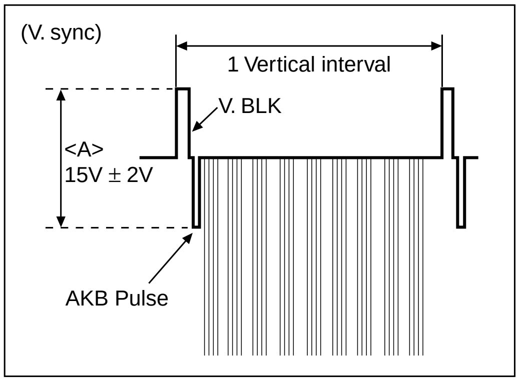
LOW-LIGHT WHITE BALANCE ADJUSTMENT

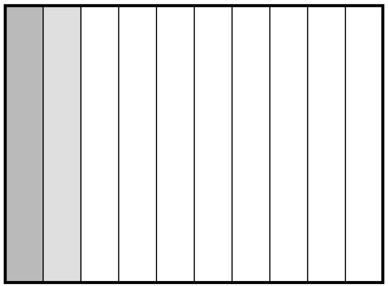
LOW-LIGHT WHITE BALANCE ADJUSTMENT

Measuring Instruments	**Signal generator (Crosshatch signal, 10-step gray scale signal)** **Oscilloscope**
Card (Slot)	**Component/RGB Input Card (Slot 1)**
Test Points	**TP-47B [CRT SOCKET PWB]** **TP-GND [CRT SOCKET PWB]**
Adjustment Points	**W*04 (Cut Off (R)), W*05 (Cut Off (G)), W*06 (Cut Off (B)) [Service Menu]**

Notes: • **Perform the following adjustments after completing the screen size adjustment.**
• **Set the COLOR TEMP./BAL. data in the Setup Menu to "00".**

1. Apply the 1080/60i component crosshatch signals to INPUT A.
2. Set COLOR TEMP. of "COLOR TEMP./BAL." in the Setup Menu to HIGH.
3. Set the PHASE, CHROMA, BRIGHT and CONTRAST potentiometers on the front panel to the center click positions.
4. Connect the oscilloscope across TP-47B and TP-GND.
5. Ensure that the AKB pulse voltage <A> of the waveform at TP-47B is **15 V ± 2 V**. If it is not, adjust it with the **SCREEN VR** potentiometer.
6. Apply the 1080/60i component 10-step gray scale signal to INPUT A.
7. Turn the BRIGHT potentiometer on the front panel gradually until the second gray step in the gray scale lights slightly. (Do not touch the **SCREEN VR** potentiometer.)
8. Adjust **WO04**, **WO05** and **WO06** in the Service Menu so that the gray bars are not tinted. (Do not set the values of **WO04** to **WO06** no more than "**50**".)
9. Write the data of **WO04** to **WO06** in **WP04** to **WP06** without any alteration. (Do not adjust the **WP** items.)





Let this bar light up slightly

SIGNAL WHITE BALANCE ADJUSTMENTS

COMPONENT SIGNAL HIGH-LIGHT WHITE BALANCE ADJUSTMENTS (HIGH: D9300)

Measuring Instruments	**Signal generator (Component 10-step gray scale signal)** **Color temperature meter**
Card (Slot)	**Component/RGB Input Card (Slot 1)**
Test Points	
Adjustment Points	**W*01 (Drive (R)), W*03 (Drive (B)), W*04 (Cut Off (R)), W*05 (Cut Off (G)), W*06 (Cut Off (B)) [Service Menu]**

Notes:
- **Perform the following adjustments after completing the Low-Light White Balance Adjustment.**
- **Set the COLOR TEM./BAL. data in the Setup Menu to “00”.**
- **The values adjusted with WO become the reference values for the following adjustment. When this data is changed, it is required to re-adjust the white balance data of all of the adjustment signals (Component, NTSC and PAL).**
  When re-adjusting the 1080/60i signal, use the WI.

1. Apply the 1080/60i component 10-step gray scale signal to INPUT A.
2. Set COLOR TEMP. of “COLOR TEMP./BAL.” in the Setup Menu to HIGH.
3. Set the PHASE, CHROMA, BRIGHT and CONTRAST potentiometers on the front panel to the center click positions.
4. Adjust **WO01** and **WO03** in the Service Menu using the color temperature meter so that the color temperature is set as shown below.
   (Do not touch **WO02**.)

   Color temperature : HIGH (D9300). x = 0.283, y = 0.297 (Reference value)
5. Ensure that the white balance tracking is correct from the gray scale steps with lower color temperatures to those with higher color temperatures.
   If the white balance tracking is deviated in darker steps, adjust **WO04** to **WO06** (Low-Light) to correct it.
   (Do not set the values of **WO04** to **WO06** no more than “**50**”.)
6. Vary the adjustment signal and adjustment data, and re-perform adjustments in steps 1 to 5 above (see Table 18).

Adjustment Signal	Function	Adjustment Data		
		R	G	B
COMMON	Drive	WO01	—	WO03
	Cut off	WO04	WO05	WO06
1080/60i (Common to 1080/24psf)	Drive	WI01	—	WI03
	Cut off	WI04	WI05	WI06
720/60p	Drive	WK01	—	WK03
	Cut off	WK04	WK05	WK06
480/60i (Common to 576/50i)	Drive	WE01	—	WE03
	Cut off	WE04	WE05	WE06
480/60p (Common to 576/50p)	Drive	WG01	—	WG03
	Cut off	WG04	WG05	WG06

Table 18

COMPONENT SIGNAL LOW-LIGHT WHITE BALANCE ADJUSTMENTS (LOW: D65)

Measuring Instruments	**Signal generator (Component 10-step gray scale signal)** **Color temperature meter**
Card (Slot)	**Component/RGB Input Card (Slot 1)**
Test Points	
Adjustment Points	**W*01 (Drive (R)), W*03 (Drive (B)), W*04 (Cut Off (R)), W*05 (Cut Off (G)), W*06 (Cut Off (B)) [Service Menu]**

Notes:
- **Perform the following adjustments after completing the Low-Light White Balance Adjustment.**
- **Set the COLOR TEM./BAL. data in the Setup Menu to "00".**
- **The values adjusted with WP become the reference values for the following adjustment. When this data is changed, it is required to re-adjust the white balance data of all of the adjustment signals (Component, NTSC and PAL).**
  When re-adjusting the 1080/60i signal, use the WJ.

1. Apply the 1080/60i component 10-step gray scale signal to INPUT A.
2. Set COLOR TEMP. of "COLOR TEMP./BAL." in the Setup Menu to LOW.
3. Set the PHASE, CHROMA, BRIGHT and CONTRAST potentiometers on the front panel to the center click positions.
4. Adjust **WP01** and **WP03** in the Service Menu using the color temperature meter so that the color temperature is set as shown below.
   (Do not touch **WP02**.)

   Color temperature: LOW (D65). x = 0.313, y = 0.329 (Reference value)
5. Ensure that the white balance tracking is correct from the gray scale steps with lower color temperatures to those with higher color temperatures.
   If the white balance tracking is deviated in darker steps, adjust **WP04** to **WP06** (Low-Light) to correct it.
   (Do not set the values of **WP04** to **WP06** no more than "**50**".)
6. Vary the adjustment signal and adjustment data, and re-perform adjustments in steps 1 to 5 above (see Table 19).

Adjustment Signal	Function	Adjustment Data		
		R	G	B
COMMON	Drive	WP01	—	WP03
	Cut off	WP04	WP05	WP06
1080/60i (Common to 1080/24psf)	Drive	WJ01	—	WJ03
	Cut off	WJ04	WJ05	WJ06
720/60p	Drive	WL01	—	WL03
	Cut off	WL04	WL05	WL06
480/60i (Common to 576/50i)	Drive	WF01	—	WF03
	Cut off	WF04	WF05	WF06
480/60p (Common to 576/50p)	Drive	WH01	—	WH03
	Cut off	WH04	WH05	WH06

Table 19

NTSC/PAL HIGH-LIGHT/LOW-LIGHT WHITE BALANCE ADJUSTMENTS

Measuring Instruments	**Signal generator (10-step gray scale signal)** **Color temperature meter**
Card (Slot)	**NTSC/PAL Video Input Card (Slot 2)**
Test Points	
Adjustment Points	**W*01 (Drive (R)), W*03 (Drive (B)), W*04 (Cut Off (R)), W*05 (Cut Off (G)), W*06 (Cut Off (B)) [Service Menu]**

Notes:
- **Perform the following adjustments after completing the 1080/60i White Balance (High-Light, Low-Light) Adjustments.**
- **Set the COLOR TEM./BAL. data in the Setup Menu to “00”.**
- **The values adjusted with WO (see the description of the High-Light White Balance adjustment) become the reference values for the high-light white balance adjustment. When this data is changed, it is required to re-adjust the high-light white balance data of all of the adjustment signals (Component, NTSC and PAL).**
- **The values adjusted with WP (see the description of the Low-Light White Balance adjustment) become the reference values for the low-light white balance adjustment. When this data is changed, it is required to re-adjust the low-light white balance data of all of the adjustment signals (Component, NTSC and PAL).**

<HIGH: D9300>

1. Apply the NTSC 10-step gray scale signal to INPUT C (Terminal VIDEO1 of the NTSC/PAL Video Input Card).
2. Set COLOR TEMP. of “COLOR TEMP./BAL.” in the Setup Menu to HIGH.
3. Set the PHASE, CHROMA, BRIGHT and CONTRAST potentiometers on the front panel to the center click positions.
4. Adjust **WA01** and **WA03** in the Service Menu using the color temperature meter so that the color temperature is set as shown below. (Do not touch **WA02**.)

   Color temperature : HIGH (D9300). x = 0.283, y = 0.297 (Reference value)

5. Ensure that the white balance tracking is correct from the gray scale steps with lower color temperatures to those with higher color temperatures. If the white balance tracking is deviated in darker steps, adjust **WA04** to **WA06** (Low-Light) to correct it. (Do not set the values of **WA04** to **WA06** no more than “**50**”.)

<LOW: D65>

6. Set COLOR TEMP. of “COLOR TEMP./BAL.” in the Setup Menu to LOW.
7. Adjust **WB01** and **WB03** in the Service Menu using the color temperature meter so that the color temperature is set as shown below. (Do not touch **WB02**.)

   Color temperature : LOW (D65). x = 0.313, y = 0.329 (Reference value)

8. Ensure that the white balance tracking is correct from the gray scale steps with lower color temperatures to those with higher color temperatures. If the white balance tracking is deviated in darker steps, adjust **WB04** to **WB06** (Low-Light) to correct it. (Do not set the values of **WB04** to **WB06** no more than “**50**”.)
9. Vary the adjustment signal and adjustment data, and re-perform adjustments in steps 1 to 8 above (see Table 20).

Adjustment Signal	Function	Adjustment Data		
		R	G	B
NTSC (Common to VIDEO and Y/C) [HIGH : D9300]	Drive	WA01	—	WA03
	Cut off	WA04	WA05	WA06
NTSC (Common to VIDEO and Y/C) [LOW : D65]	Drive	WB01	—	WB03
	Cut off	WB04	WB05	WB06
PAL (Common to VIDEO and Y/C) [HIGH : D9300]	Drive	WC01	—	WC03
	Cut off	WC04	WC05	WC06
PAL (Common to VIDEO and Y/C) [LOW : D65]	Drive	WD01	—	WD03
	Cut off	WD04	WD05	WD06

Table 20

SIGNAL BRIGHTNESS ADJUSTMENTS

BRIGHTNESS ADJUSTMENTS (HDTV)

Measuring Instruments	**Signal generator (Component gray scale signal)**
Card (Slot)	**Component/RGB Input Card (Slot 1)**
Test Points	
Adjustment Points	**S*02 (Overscan Bright High), S*06 (Overscan Bright Low),** **SM** (Underscan Bright High/Low)** **[Service Menu]**

Notes:
- **Perform the following adjustments after completing the Contrast and White Balance adjustments.**
- **Set the SUB PICTURE ADJ. data in the Setup Menu to "00".**
- **The value adjusted at the SO adjustment becomes the reference value for the following adjustments. When this data is changed, it is required to re-adjust the data of all of the adjustment signals (HDTV, SDTV and NTSC/PAL). When re-adjusting the 1080/60i signal, use the SI.**
- **When overscan data of a signal is changed, it is required to re-adjust the underscan data of the same adjustment signal.**
- **After completing the brightness adjustments, make sure that the Low-Light is not deviated. If it is, it is required to perform the Low-Light adjustment again.**

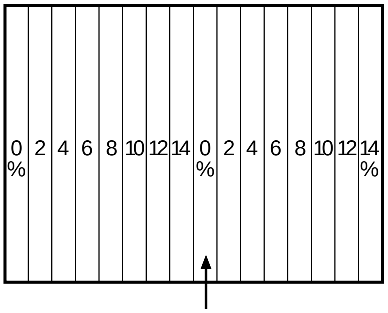
— Standard value (SO) adjustment —

<White Balance HIGH: D9300>

1. Apply the 1080/60i component gray scale signal to INPUT A.
2. Set COLOR TEMP. of "COLOR TEMP./BAL." in the Setup Menu to HIGH.
3. Set the PHASE, CHROMA, BRIGHT and CONTRAST potentiometers on the front panel to the center click positions.
4. Adjust **SO02** in the Service Menu so that the 0% black area in the gray scale signal lights up slightly. (Be sure to avoid degradation of the black color.)

<White Balance LOW (D65)>

5. Set COLOR TEMP. of "COLOR TEMP./BAL." in the Setup Menu to LOW.
6. Adjust **SO06** so that the 0% black area in the gray scale signal lights slightly. (Be sure to avoid degradation of the black color.)



0% Black area

— Other signals adjustments —

<White Balance HIGH (D9300)>

7. Apply the 1080/60i component gray scale signal to INPUT A.
8. Set COLOR TEMP. of "COLOR TEMP./BAL." in the Setup Menu to HIGH.
9. Set the PHASE, CHROMA, BRIGHT and CONTRAST potentiometers on the front panel to the center click positions.
10. Adjust **SI02** in the Service Menu so that the 0% black area in the gray scale signal lights up slightly. (Be sure to avoid degradation of the black color.)
11. Set the UNDER SCAN button on the front panel to ON so that the scanning size is underscanning.
12. Adjust **SM26** so that the 0% black area in the gray scale signal lights slightly. (Be sure to avoid degradation of the black color.)
13. Set the UNDER SCAN button on the front panel to OFF.

<White Balance LOW (D65)>

14. Set COLOR TEMP. of "COLOR TEMP./BAL." in the Setup Menu to LOW.
15. Adjust **SI06** so that the 0% black area in the gray scale signal lights slightly. (Be sure to avoid degradation of the black color.)
16. Set the UNDER SCAN button on the front panel to ON so that the scanning size is underscanning.
17. Adjust **SM27** so that the 0% black area in the gray scale signal lights slightly. (Be sure to avoid degradation of the black color.)
18. Set the UNDER SCAN button on the front panel to OFF.
19. Vary the adjustment signal and adjustment data, and re-perform adjustments in steps 7 to 18 above (see Table 21).

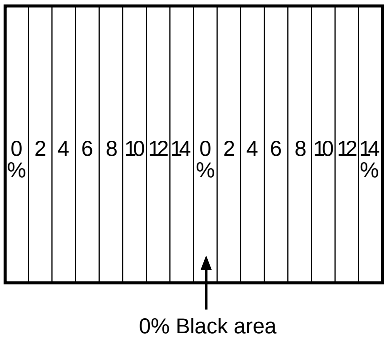
Adjustment Signal	White Balance HIGH		White Balance LOW	
	Overscan	Underscan	Overscan	Underscan
COMMON	SO02	—	SO06	—
1080/60i	SI02	SM26	SI06	SM27
1080/24psf	SJ02	SM29	SJ06	SM30
720/60p	SK02	SM32	SK06	SM33

Table 21

BRIGHTNESS ADJUSTMENTS (SDTV)

Measuring Instruments	**Signal generator (Component gray scale signal)**
Card (Slot)	**Component/RGB Input Card (Slot 1)**
Test Points	
Adjustment Points	**S*02 (4:3 Overscan Bright High), S*06 (4:3 Overscan Bright Low),** **SM** (4:3 Underscan Bright High/Low),** **SN** (16:9 Overscan/Underscan Bright High/Low) [Service Menu]**

Notes:
- **Perform the following adjustment after completing the 1080/60i Brightness Adjustment.**
- **Set the SUB PICTURE ADJ. data in the Setup Menu to "00".**
- **The SO value (see the description for the HDTV Brightness adjustment) becomes the reference value for the following adjustments. When this data is changed, it is required to re-adjust the data of all of the adjustment signals (HDTV, SDTV and NTSC/PAL). When re-adjusting the 1080/60i signal, use the SI.**
- **When overscan data of a signal is changed, it is required to re-adjust the underscan data of the same adjustment signal.**
- **When the 4:3 data of a signal is changed, it is required to re-adjust the 16:9 data of the same adjustment signal.**
- **After completing the brightness adjustments, make sure that the Low-Light is not deviated. If it is, it is required to perform the Low-Light adjustment again.**



<White Balance HIGH: D9300>

1. Apply the 480/60i component gray scale signal to INPUT A.
2. Set COLOR TEMP. of "COLOR TEMP./BAL." in the Setup Menu to HIGH.
3. Set the PHASE, CHROMA, BRIGHT and CONTRAST potentiometers on the front panel to the center click positions.
4. Adjust **SE02** in the Service Menu so that the 0% black area in the gray scale signal lights up slightly. (Be sure to avoid degradation of the black color.)
5. Set the ASPECT button on the front panel to ON so that the scanning size is 16:9.
6. Adjust **SN26** so that the 0% black area in the gray scale signal lights slightly. (Be sure to avoid degradation of the black color.)
7. Set the ASPECT button on the front panel to OFF and the UNDER SCAN button to ON to set the scanning size to underscanning for the 4:3 ratio.
8. Adjust **SM14** so that the 0% black area in the gray scale signal lights up slightly. (Be sure to avoid degradation of the black color.)
9. Set the ASPECT button on the front panel to ON to set the scanning size to underscanning for the 16:9 ratio.
10. Adjust **SN29** so that the 0% black area in the gray scale signal lights slightly. (Be sure to avoid degradation of the black color.)
11. Set the ASPECT and UNDER SCAN buttons on the front panel to OFF.

<White Balance LOW (D65)>

12. Set COLOR TEMP. of "COLOR TEMP./BAL." in the Setup Menu to LOW.
13. Adjust **SE06** so that the 0% black area in the gray scale signal lights slightly. (Be sure to avoid degradation of the black color.)
14. Set the ASPECT button on the front panel to ON so that the scanning size is 16:9.
15. Adjust **SN27** so that the 0% black area in the gray scale signal lights slightly. (Be sure to avoid degradation of the black color.)
16. Set the ASPECT button on the front panel to OFF and the UNDER SCAN button to ON to set the scanning size to underscanning for the 4:3 ratio.
17. Adjust **SM15** so that the 0% black area in the gray scale signal lights slightly. (Be sure to avoid degradation of the black color.)
18. Set the ASPECT button on the front panel to ON to set the scanning size to underscanning for the 16:9 ratio.
19. Adjust **SN30** so that the 0% black area in the gray scale signal lights slightly. (Be sure to avoid degradation of the black color)
20. Set the ASPECT and UNDER SCAN buttons on the front panel to OFF.
21. Vary the adjustment signal and adjustment data, and re-perform adjustments in steps 1 to 20 above (see Table 22).

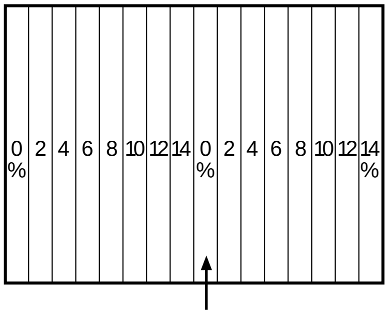
Adjustment Signal	White Balance HIGH				White Balance LOW			
	Overscan		Underscan		Overscan		Underscan	
	4 : 3	16 : 9	4 : 3	16 : 9	4 : 3	16 : 9	4 : 3	16 : 9
480/60i	SE02	SN26	SM14	SN29	SE06	SN27	SM15	SN30
576/50i	SF02	SN32	SM17	SN35	SF06	SN33	SM18	SN36
480/60p	SG02	SN38	SM20	SN41	SG06	SN39	SM21	SN42

Table 22

BRIGHTNESS ADJUSTMENTS (NTSC/PAL VIDEO)

Measuring Instruments	**Signal generator (Gray scale signal)**
Card (Slot)	**NTSC/PAL Video Input Card (Slot 2)**
Test Points	
Adjustment Points	**S*02 (4:3 Overscan Bright High), S*06 (4:3 Overscan Bright Low), SM** (4:3 Underscan Bright High/Low), SN** (16:9 Overscan/Underscan Bright High/Low) [Service Menu]**

Notes:
- **Ensure that the output waveforms from the NTSC/PAL Video Input Cards are normal before proceeding to the following adjustments (see page 72).**
- **Perform the following adjustments after completing the 1080/60i Brightness Adjustment.**
- **Set the SUB PICTURE ADJ. data in the Setup Menu to "00".**
- **The SO value (see the description for the HDTV Brightness adjustment) becomes the reference value for the following adjustments. When this data is changed, it is required to re-adjust the data of all of the adjustment signals (HDTV, SDTV and NTSC/PAL).**
  When re-adjusting the 1080/60i signal, use the SI. (For the adjustment of the 1080/60i signal, use the Component/RGB Input Card.)
- **When overscan data of a signal is changed, it is required to re-adjust the underscan data of the same adjustment signal.**
- **When the 4:3 data of a signal is changed, it is required to re-adjust the 16:9 data of the same adjustment signal.**
- **After completing the brightness adjustments, make sure that the Low-Light is not deviated. If it is, it is required to perform the Low-Light adjustment again.**



0% Black area

<White Balance HIGH: D9300>

1. Apply the NTSC gray scale signal to INPUT C (Terminal VIDEO1 of the NTSC/PAL Video Input Card).
2. Set COLOR TEMP. of "COLOR TEMP./BAL." in the Setup Menu to HIGH.
3. Set the PHASE, CHROMA, BRIGHT and CONTRAST potentiometers on the front panel to the center click positions.
4. Adjust **SA02** in the Service Menu so that the 0% black area in the gray scale signal lights up slightly. (Be sure to avoid degradation of the black color.)
5. Set the ASPECT button on the front panel to ON so that the scanning size is 16:9.
6. Adjust **SN02** so that the 0% black area in the gray scale signal lights slightly. (Be sure to avoid degradation of the black color.)
7. Set the ASPECT button on the front panel to OFF and the UNDER SCAN button to ON to set the scanning size to underscanning for the 4:3 ratio.
8. Adjust **SM02** so that the 0% black area in the gray scale signal lights up slightly. (Be sure to avoid degradation of the black color.)
9. Set the ASPECT button on the front panel to ON to set the scanning size to underscanning for the 16:9 ratio.
10. Adjust **SN05** so that the 0% black area in the gray scale signal lights slightly. (Be sure to avoid degradation of the black color.)
11. Set the ASPECT and UNDER SCAN buttons on the front panel to OFF.

<White Balance LOW (D65)>

12. Set COLOR TEMP. of "COLOR TEMP./BAL." in the Setup Menu to LOW.
13. Adjust **SA06** so that the 0% black area in the gray scale signal lights slightly. (Be sure to avoid degradation of the black color.)
14. Set the ASPECT button on the front panel to ON so that the scanning size is 16:9.
15. Adjust **SN03** so that the 0% black area in the gray scale signal lights slightly. (Be sure to avoid degradation of the black color.)
16. Set the ASPECT button on the front panel to OFF and the UNDER SCAN button to ON to set the scanning size to underscanning for the 4:3 ratio.
17. Adjust **SM03** so that the 0% black area in the gray scale signal lights slightly. (Be sure to avoid degradation of the black color.)
18. Set the ASPECT button on the front panel to ON to set the scanning size to underscanning for the 16:9 ratio.
19. Adjust **SN06** so that the 0% black area in the gray scale signal lights slightly. (Be sure to avoid degradation of the black color)
20. Set the ASPECT and UNDER SCAN buttons on the front panel to OFF.
21. Vary the adjustment signal and adjustment data, and re-perform adjustments in steps 1 to 20 above (see Table 23).

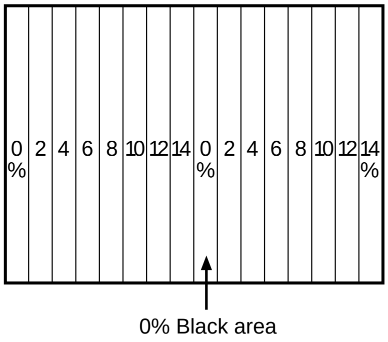
Adjustment Signal	White Balance HIGH				White Balance LOW			
	Overscan		Underscan		Overscan		Underscan	
	4 : 3	16 : 9	4 : 3	16 : 9	4 : 3	16 : 9	4 : 3	16 : 9
NTSC(VIDEO)	SA02	SN02	SM02	SN05	SA06	SN03	SM03	SN06
PAL(VIDEO)	SC02	SN14	SM08	SN17	SC06	SN15	SM09	SN18

Table 23

BRIGHTNESS ADJUSTMENTS (NTSC/PAL Y/C)

Measuring Instruments	**Signal generator (Gray scale signal)**
Card (Slot)	**NTSC/PAL Video Input Card (Slot 2)**
Test Points	
Adjustment Points	**S*02 (4:3 Overscan Bright High), S*06 (4:3 Overscan Bright Low),** **SM** (4:3 Underscan Bright High/Low),** **SN** (16:9 Overscan/Underscan Bright High/Low) [Service Menu]**

Notes:
- **Ensure that the output waveforms from the NTSC/PAL Video Input Cards are normal before proceeding to the following adjustments (see page 72).**
- **Perform the following adjustments after completing the 1080/60i Brightness Adjustment.**
- **Set the SUB PICTURE ADJ. data in the Setup Menu to "00".**
- **The SO value (see the description for the HDTV Brightness adjustment) becomes the reference value for the following adjustments. When this data is changed, it is required to re-adjust the data of all of the adjustment signals (HDTV, SDTV and NTSC/PAL).**
  When re-adjusting the 1080/60i signal, use the SI. (For the adjustment of the 1080/60i signal, use the Component/RGB Input Card.)
- **When overscan data of a signal is changed, it is required to re-adjust the underscan data of the same adjustment signal.**
- **When the 4:3 data of a signal is changed, it is required to re-adjust the 16:9 data of the same adjustment signal.**
- **After completing the brightness adjustments, make sure that the Low-Light is not deviated. If it is, it is required to perform the Low-Light adjustment again.**



<White Balance HIGH: D9300>

1. Apply the NTSC gray scale signal to INPUT D (Terminal Y/C of the NTSC/PAL Video Input Card).
2. Set COLOR TEMP. of "COLOR TEMP./BAL." in the Setup Menu to HIGH.
3. Set the PHASE, CHROMA, BRIGHT and CONTRAST potentiometers on the front panel to the center click positions.
4. Adjust **SB02** in the Service Menu so that the 0% black area in the gray scale signal lights up slightly. (Be sure to avoid degradation of the black color.)
5. Set the ASPECT button on the front panel to ON so that the scanning size is 16:9.
6. Adjust **SN08** so that the 0% black area in the gray scale signal lights slightly. (Be sure to avoid degradation of the black color.)
7. Set the ASPECT button on the front panel to OFF and the UNDER SCAN button to ON to set the scanning size to underscanning for the 4:3 ratio.
8. Adjust **SM05** so that the 0% black area in the gray scale signal lights up slightly. (Be sure to avoid degradation of the black color.)
9. Set the ASPECT button on the front panel to ON to set the scanning size to underscanning for the 16:9 ratio.
10. Adjust **SN11** so that the 0% black area in the gray scale signal lights slightly. (Be sure to avoid degradation of the black color.)
11. Set the ASPECT and UNDER SCAN buttons on the front panel to OFF.

<White Balance LOW (D65)>

12. Set COLOR TEMP. of "COLOR TEMP./BAL." in the Setup Menu to LOW.
13. Adjust **SB06** so that the 0% black area in the gray scale signal lights slightly. (Be sure to avoid degradation of the black color.)
14. Set the ASPECT button on the front panel to ON so that the scanning size is 16:9.
15. Adjust **SN09** so that the 0% black area in the gray scale signal lights slightly. (Be sure to avoid degradation of the black color.)
16. Set the ASPECT button on the front panel to OFF and the UNDER SCAN button to ON to set the scanning size to underscanning for the 4:3 ratio.
17. Adjust **SM06** so that the 0% black area in the gray scale signal lights slightly. (Be sure to avoid degradation of the black color.)
18. Set the ASPECT button on the front panel to ON to set the scanning size to underscanning for the 16:9 ratio.
19. Adjust **SN12** so that the 0% black area in the gray scale signal lights slightly. (Be sure to avoid degradation of the black color)
20. Set the ASPECT and UNDER SCAN buttons on the front panel to OFF.
21. Vary the adjustment signal and adjustment data, and re-perform adjustments in steps 1 to 20 above (see Table 24).

Adjustment Signal	White Balance HIGH				White Balance LOW			
	Overscan		Underscan		Overscan		Underscan	
	4 : 3	16 : 9	4 : 3	16 : 9	4 : 3	16 : 9	4 : 3	16 : 9
NTSC(Y/C)	SB02	SN08	SM05	SN11	SB06	SN09	SM06	SN12
PAL(Y/C)	SD02	SN20	SM11	SN23	SD06	SN21	SM12	SN24

Table 24

ADJUSTMENT OF NTSC/PAL VIDEO INPUT CARD (BT-YA701P)

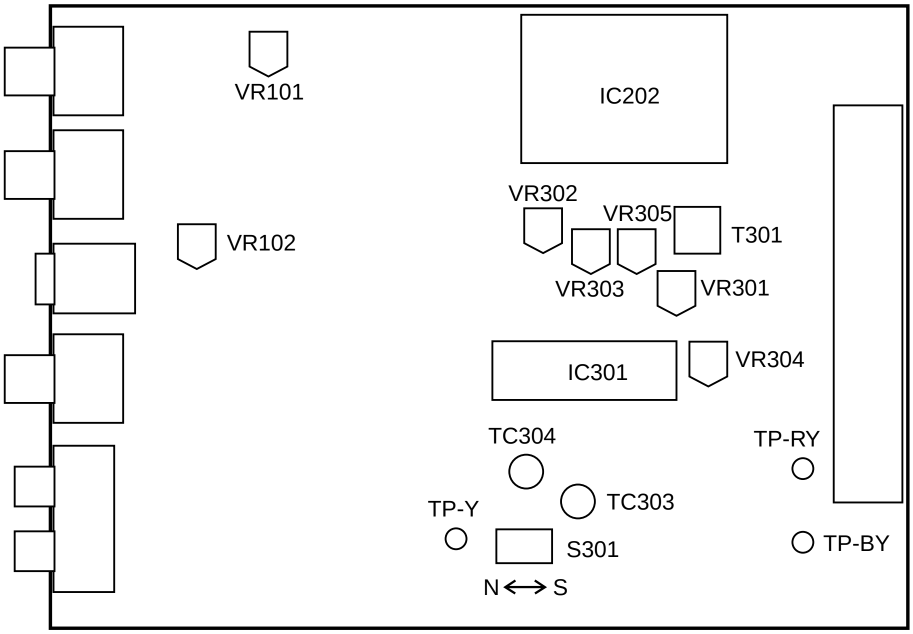
BEFORE ADJUSTMENTS

1. Warm run the set and measuring instruments sufficiently (at least 30 minutes).
2. Never touch the parts (such as variable resistors, transformer and capacitors) other than those specified in the adjustment procedures.
3. Set S301 (APC SW) to N (Normal) unless otherwise specified.

MEASURING INSTRUMENTS AND TOOLS

- Signal generator (NTSC/PAL color bar signals)
- Oscilloscope

ADJUSTMENT LOCATIONS


VR101
IC202
VR302
VR305
T301
VR102
VR303
VR301
IC301
VR304
TC304
TP-RY
TC303
TP-Y
S301
TP-BY
N ⟷ S

VR101 : VBS AMP VR
VR102 : Y AMP VR
VR301 : LIS GAIN VR
VR302 : TINT VR
VR303 : NTSC COLOR VR
VR304 : Pr GAIN VR
VR305 : PAL COLOR VR
T301 : LIS 3 TRANSF
TC303 : PAL PHASE TRIM
TC304 : NTSC PHASE TRIM
S301 : APC SW
TP-Y : Q208-E
TP-RY : Q303-E
TP-BY : Q305-E

ADJUSTMENTS OF NTSC/PAL VIDEO INPUT CARD (BT-YA701P)

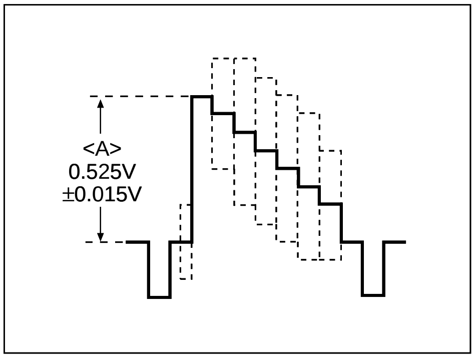
LUMINANCE SIGNAL OUTPUT LEVEL ADJUSTMENT

Measuring Instruments	**Signal generator (NTSC 75% color bar signal)** **Oscilloscope**
Test Points	**CN001 pin 1 (Y Output)**
Adjustment Points	**VR101 (VBS AMP VR), VR102 (Y AMP VR)**

[Preparation] Supply power to the following connector (CN001) pins using a DC power supply, extension cable, etc.

CN001 pins 45, 46	14 V DC ± 1 V
CN001 pins 47, 48	7 V DC ± 1 V
CN001 pins 25 - 29, 31, 32, 35, 36, 49, 50	GND

1. Apply the NTSC color bar signal to Terminal VIDEO1.
2. Connect the oscilloscope across CN001 pin 1 and GND.
3. Adjust **VR101** so that the voltage at <A> in the figure on the right is **0.525 V ± 0.015 V**.
4. Apply the HIGH level (3 to 5 V DC) to CN001 pin 5 and switch to the Y/C input.
5. Apply the NTSC color bar signal to terminal Y/C.
6. Adjust **VR102** so that the voltage at <A> in the figure on the right is **0.525 V ± 0.015 V**.



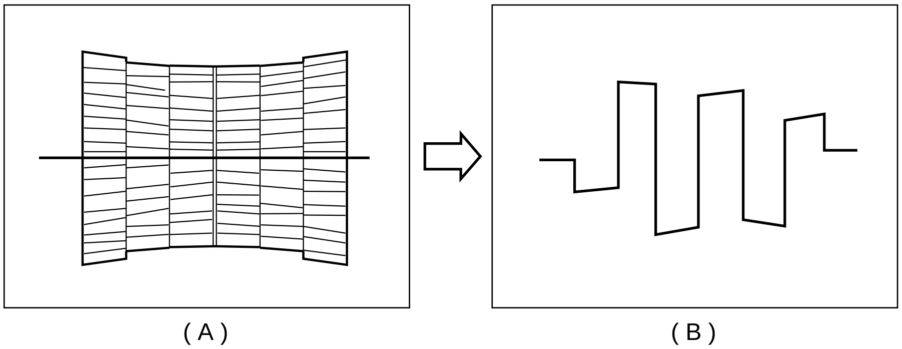
NTSC (3.58 MHz) COLOR SYNC ADJUSTMENT

Measuring Instruments	**Signal generator (NTSC 75% color bar signal)** **Oscilloscope**
Test Points	**CN001 pin 1 (Y Output)** **CN001 pin 2 (B-Y output)**
Adjustment Points	**VR303 (NTSC COLOR VR), S301 (APC SW), TC304 (NTSC PHASE TRIM)**

[Preparation] Supply power to the following connector (CN001) pins using a DC power supply, extension cable, etc.

CN001 pins 45, 46	14 V DC ± 1 V
CN001 pins 47, 48	7 V DC ± 1 V
CN001 pins 25 - 29, 31, 32, 35, 36, 49, 50	GND

1. Apply the NTSC color bar signal to Terminal VIDEO1.
2. Connect CH1 of the oscilloscope to CN001 pin 1 and CH2 to CN001 pin 2.
3. While obtaining synchronization with the H sync with CH1, adjust **VR303** so that the CH2 waveform becomes as shown in (A) in the figure shown below.
4. Set S301 to S (Service).
5. Adjust **TC304** so that the CH2 waveform changes from (A) to (B) in the following figure. Waveform (B) should be almost stationary.
6. Set S301 to N (Normal) and ensure that the CH2 waveform is stationary.


(A) (B)

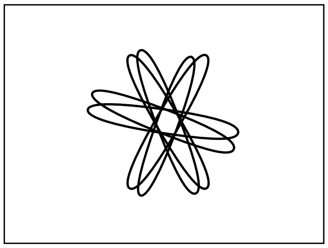
PAL COLOR SYNC AND LISSAJOU ADJUSTMENTS

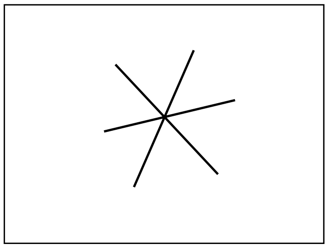
Measuring Instruments	**Signal generator (PAL 75% color bar signal)** **Oscilloscope**
Test Points	**CN001 pin 1 (Y Output)** **CN001 pin 2 (B-Y Output)** **CN001 pin 3 (R-Y Output)**
Adjustment Points	**S301 (APC SW), VR301 (LIS GAIN VR), VR304 (Pr GAIN VR), VR305 (PAL COLOR VR), TC303(PAL PHASE TRIM), T301 (LIS 3 TRANSF)**

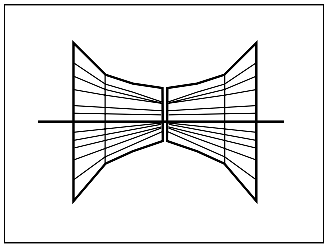
[Preparation]   Supply power to the following connector (CN001) pins using a DC power supply, extension cable, etc.

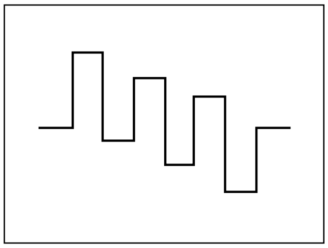
CN001 pins 45, 46	14 V DC ± 1 V
CN001 pins 47, 48	7 V DC ± 1 V
CN001 pins 25 - 29, 31, 32, 35, 36, 49, 50	GND

1. Apply the PAL color bar signal to Terminal VIDEO1.
2. Set S301 to S (Service).
3. Connect CH1 of the oscilloscope to CN001 pin 2 and CH2 to CN001 pin 3.
4. Adjust **VR304** and **VR305** to obtain a waveform as shown in (A) in the figure shown below.
5. Adjust **VR301** and **T301** so that the waveform changes from (A) to (B) in the following figure.
6. Connect CH1 of the oscilloscope to CN001 pin 1.
7. While obtaining synchronization with the H sync with CH1, adjust **VR304** and **VR305** so that the CH2 waveform becomes approximately as shown in (C) in the figure shown below.
8. Adjust **TC303** so that the CH2 waveform changes from (C) to (D) in the following figure. Waveform (D) should be almost stationary.
9. Set S301 to N (Normal) and ensure that the CH2 waveform is stationary.


(A)


(B)


(C)

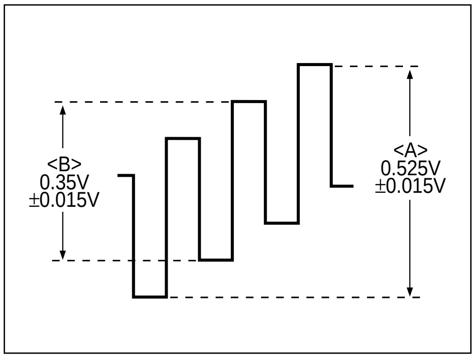

(D)

NTSC COLOR TINT AND DEPTH ADJUSTMENTS

Measuring Instruments	**Signal generator (NTSC 75% color bar signal)** **Oscilloscope**
Test Points	**CN001 pin 2 (B-Y Output)**
Adjustment Points	**VR302 (TINT VR), VR303 (NTSC COLOR VR)**

[Preparation] Supply power to the following connector (CN001) pins using a DC power supply, extension cable, etc.

CN001 pins 45, 46	14 V DC ± 1 V
CN001 pins 47, 48	7 V DC ± 1 V
CN001 pins 25 - 29, 31, 32, 35, 36, 49, 50	GND



Note: Perform the following adjustments after completing the NTSC Color Sync adjustment.

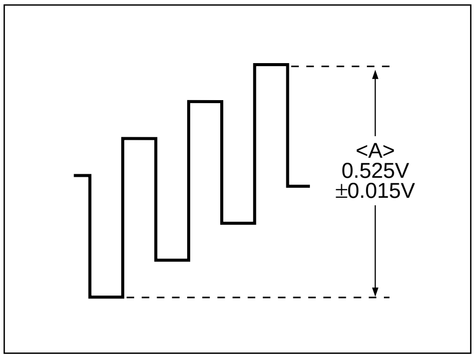
1. Apply the NTSC color bar signal to Terminal VIDEO1.
2. Connect the oscilloscope across CN001 pin 2 and GND.
3. Adjust **VR303** so that the voltage at <A> in the figure on the right is **0.525 V ± 0.015 V**.
4. Adjust **VR302** so that the voltage at <B> in the figure on the right is **0.35 V ± 0.015 V**.

PAL COLOR DEPTH ADJUSTMENT

Measuring Instruments	**Signal generator (PAL 75% color bar signal)** **Oscilloscope**
Test Points	**CN001 pin 2 (B-Y Output)**
Adjustment Points	**VR305 (PAL COLOR VR)**

[Preparation] Supply power to the following connector (CN001) pins using a DC power supply, extension cable, etc.

CN001 pins 45, 46	14 V DC ± 1 V
CN001 pins 47, 48	7 V DC ± 1 V
CN001 pins 25 to 29, 31, 32, 35, 36, 49, 50	GND



Note: Perform the following adjustments after completing the PAL Color Sync and Lissajou adjustments.

1. Apply the PAL color bar signal to Terminal VIDEO1.
2. Connect the oscilloscope across CN001 pin 2 and GND.
3. Adjust **VR305** so that the voltage at <A> in the figure on the right is **0.525 V ± 0.015 V**.

PAL COLOR DIFFERENCE DEMODULATION RATIO ADJUSTMENT

Measuring Instruments	**Signal generator (PAL 75% color bar signal)** **Oscilloscope**
Test Points	**CN001 pin 3 (R-Y Output)**
Adjustment Points	**VR304 (Pr GAIN VR)**

[Preparation] **Supply power to the following connector (CN001) pins using a DC power supply, extension cable, etc.**

CN001 pins 45, 46	14 V DC ± 1 V
CN001 pins 47, 48	7 V DC ± 1 V
CN001 pins 25 - 29, 31, 32, 35, 36, 49, 50	GND

Note: Perform the following adjustments after completing the PAL Color Depth adjustment.

1. Apply the PAL color bar signal to Terminal VIDEO1.
2. Connect the oscilloscope across CN001 pin 3 and GND.
3. Adjust **VR304** so that the voltage at <A> in the figure on the right is **0.525 V ± 0.015 V**.